NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

FACT BOOK FOR FISCAL YEAR 1981

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

For Administrative Use Only

NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

FACT BOOK FOR FISCAL YEAR 1981

This information has been assembled for use by NHLBI staff, the National Heart, Lung, and Blood Advisory Council, and the interested scientific community. Questions regarding any of this information should be directed to the NHLBI Information Office, National Heart, Lung, and Blood Institute, 9000 Rockville Pike, Bethesda, Maryland 20205.

October 1981

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
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1. Directory of NHLBI Personnel*

Office of the Director	Bldg.	Room	Phone
Director, **Dr. Peter L. Frommer (Acting)**	31	5A49	496-5166
Deputy Director, **Dr. Peter L. Frommer**	31	5A49	496-1078
Executive Officer, **Mrs. Evelyn Attix**	31	5A50	496-2411
Associate Director for Scientific Program Operation, **Dr. Jay Moskowitz**	31	5A03	496-6331
Associate Director for Prevention, Education, and Control, **Mr. Michael F. White**	31	4A03A	496-5437
Assistant Director for International Programs, **Dr. Ruth J. Hegyeli**	31	4A10	496-5375
Assistant to the Director, **Ms. Irene Kuraeff**	31	5A35	496-3245
Office of Special Concerns, **Mrs. Juanita P. Cooke**	31	4A05	496-1763
Office of Administrative Management, Director, **Mrs. Evelyn Attix**	31	5A50	496-2411
Deputy Executive Officer, **Mr. Jack Nance**	31	5A50	496-2411
Administrative Officer, **Mr. Ellis Mullinix**	31	5A46	496-5931
Financial Management Officer, **Mr. John H. Reeder**	31	5A10	496-4653
Personnel Officer, **Ms. Peggy O'Brien**	31	5A34	496-6477
Management Analysis Officer, **Ms. Sheila Merritt**	31	5A50	496-5931
Privacy Act Coordinator, **Ms. Marion Matthews**	31	5A29	496-9739
Freedom of Information Coordinator, **Ms. Nancy Cherry**	31	5A29	496-9737
Office of Prevention, Education, and Control, Director, **Mr. Michael F. White**	31	4A03A	496-5437
Chief, Public Inquiries and Reports Branch (Information Office), **Mr. York E. Onnen**	31	4A21A	496-4236
Chief, Health Education Branch, **Mr. Graham W. Ward**	31	4A24A	496-1051
Office of Program Planning and Evaluation, Director, **Dr. Jay Moskowitz**	31	5A03	496-6331
Chief, Program Analysis and Evaluation Branch, **Dr. Edward Sondik**	31	5A11	496-3620
Chief, Planning and Coordination Branch, **Ms. Janyce E. Notopoulos**	31	5A03	496-5031
Chief, Information Systems Branch, **Mr. Ralph Van Wey**	WW	632	496-7875

Division of Heart and Vascular Diseases			
Director, **Dr. Barbara Packard**	FE	416A	496-2553
Deputy Director **(Vacant)**	FE	416	496-3581
Administrative Officer, **Ms. Brenda Keagan**	FE	420	496-5595
Associate Director for Scientific Programs, **Dr. William J. Zukel**	FE	412A	496-5656
Chief, Research Training and Development Branch, **Dr. Donald C. MacCanon**	FE	3A08A	496-1724
Associate Director for Cardiology, **Dr. Barbara Packard (Acting)**	FE	416A	496-2553
Chief, Cardiac Diseases Branch, **Dr. Eugene Passamani**	FE	3C06	496-1081
Chief, Cardiac Functions Branch, **Dr. Thomas W. Nielsen**	FE	304C	496-1627
Chief, Devices and Technology Branch, **Dr. John T. Watson**	FE	316A	496-1586
Associate Director for Etiology of Arteriosclerosis, Hypertension, and Lipid Metabolism, **Dr. Gardner C. McMillan**	FE	4C12A	496-1613
Chief, Hypertension and Kidney Diseases Branch, **Dr. Gardner C. McMillan (Acting)**	FE	4C12A	496-1613
Chief, Lipid Metabolism and Atherogenesis Branch, **Dr. Basil M. Rifkind**	FE	4A14A	496-1681
Associate Director for Clinical Applications and Prevention, **Dr. William T. Friedewald**	FE	212B	496-2533
Chief, Behavioral Medicine Branch, **Dr. Stephen Weiss**	FE	601	496-9380
Chief, Clinical Trials Branch, **Dr. Curt Furberg**	FE	216A	496-4323

* Current as of October 1, 1981. For locating personnel not listed, the general information number is 301-496-4000. For direct dialing, the area code is 301.

FE—Federal Building, 7550 Wisconsin Avenue, Bethesda, Maryland 20205.
WW—Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20205.

Division of Heart and Vascular Diseases (Continued)	Bldg.	Room	Phone
Chief, Mathematical and Applied Statistics Branch, **Dr. David DeMets**	FE	2A10	496-5905
Chief, Preventive Cardiology Branch, **Dr. William T. Friedewald (Acting)**	FE	608	496-2465
Associate Director for Epidemiology and Biometry, **Dr. Manning Feinleib**	FE	2C08A	496-2327
Chief, Biometrics Research Branch, **Dr. Robert Garrison**	FE	2C06A	496-5826
Chief, Epidemiology Branch, **Dr. Manning Feinleib (Acting)**	FE	2C08A	496-2327

Division of Lung Diseases

Director, **Dr. Suzanne S. Hurd (Acting)**	WW	6A16	496-7208
Deputy Director, **Dr. Suzanne S. Hurd**	WW	6A15	496-7440
Associate Director for Program Planning and Evaluation **(Vacant)**	WW	6A16	496-7984
Administrative Officer, **Mrs. Marlyn Harrison**	WW	6A16	496-7208
Chief, Airways Diseases Branch, **Dr. J. Sri Ram**	WW	6A11	496-7332
Chief, Interstitial Lung Diseases Branch, **Dr. Carol Vreim**	WW	6A03	496-7034
Chief, Prevention, Education, and Manpower Branch, **Dr. Robert Conant**	WW	6A10	496-7668
Chief, Structure and Function Branch, **Dr. Bitten Stripp**	WW	6A03	496-7171

Division of Blood Diseases and Resources

Director, **Dr. Amoz I. Chernoff**	FE	518A	496-4868
Deputy Director, **Dr. George N. Eaves**	FE	516A	496-4869
Special Assistant for Clinical Activities, **Dr. Ronald L. Lieberman**	FE	5C02	496-4186
Special Assistant for Manpower Development, **Dr. Fann Harding**	FE	514A	496-1817
Special Assistant for Program Planning and Evaluation, **Mr. Allan Czarra**	FE	520	496-4186
Administrative Officer, **Ms. Mary C. Gall**	FE	512A	496-3533
Chief, Blood Diseases Branch, **Dr. Anne Ball**	FE	5C10B	496-5911
Chief, Blood Resources Branch, **Dr. John M. Mishler IV**	FE	5A08B	496-1537
Chief, Sickle Cell Disease Branch, **Dr. Clarice Reid**	FE	504D	496-6931

Division of Extramural Affairs

Director, **Dr. Jerome G. Green**	WW	7A17B	496-7416
Deputy Director **(Vacant)**	WW	7A17A	496-7225
Associate Director for Review, **Dr. Jim L. Shields**	WW	557	496-7919
Chief, Office of Program Policy and Procedure **(Vacant)**	WW	7A17A	496-7225
Administrative Officer, **Ms. Kathleen Maguire**	WW	7A11B	496-7893
Chief, Contracts Operations Branch, **Mr. John A. Turlik**	WW	650A	496-7666
Chief, Grants Operations Branch, **Mr. James M. Pike**	WW	4A18A	496-7255
Chief, Review Branch, **Dr. Jim L. Shields**	WW	557	496-7919

For locating personnel not listed, the general information number is 301-496-4000. For direct dialing, the area code is 301.

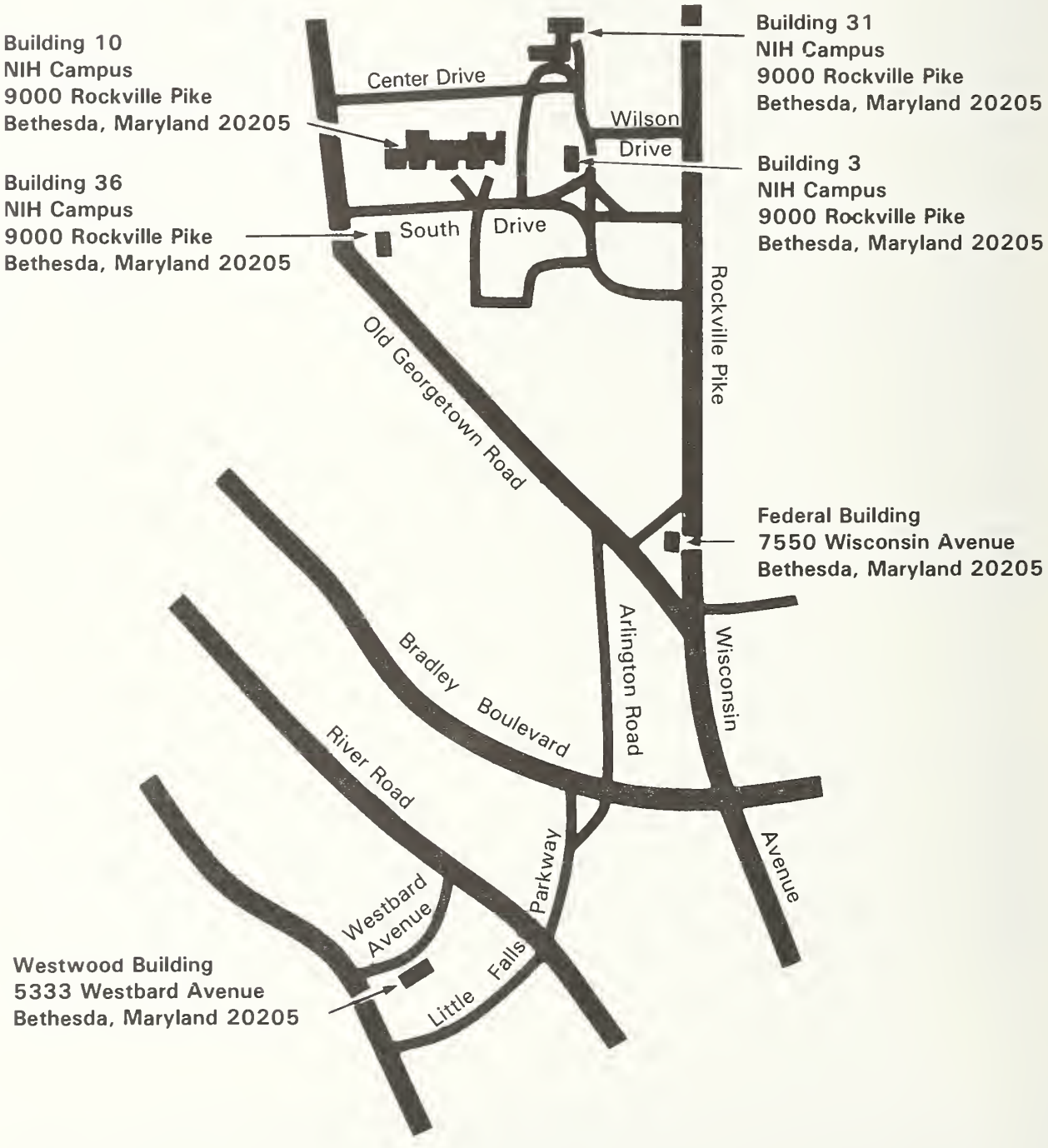
FE—Federal Building, 7550 Wisconsin Avenue, Bethesda, Maryland 20205.
WW—Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20205.

Division of Intramural Research	Bldg.	Room	Phone
Director, **Dr. Jack Orloff**	10	7N214	496-2116
Clinical Director, **Dr. Harry Keiser**	10	7N220	496-1518
Administrative Officer, **Mr. Richard P. Striker**	10	7N216	496-3483
Chief, Section on Laboratory Animal Medicine and Surgery, **Dr. Joseph E. Pierce**	14E	106B	496-9673
Chief, Section on Theoretical Biophysics, **Dr. John L. Stephenson**	31	4B44	496-4325
Chief, Cardiology Branch, **Dr. Stephen E. Epstein**	10	7B15	496-5817
Chief, Clinical Hematology Branch, **Dr. Arthur R. Nienhuis**	10	7D19	496-5093
Chief, Hypertension-Endocrine Branch, **Dr. Harry Keiser (Acting)**	10	7N214	496-2116
Chief, Molecular Cardiology Branch, **Dr. Robert S. Adelstein**	10	7B15	496-1865
Chief, Molecular Disease Branch, **Dr. Bryan Brewer**	10	7N117	496-5095
Chief, Molecular Hematology Branch, **Dr. W. French Anderson**	10	7D20	496-6861
Chief, Pathology Branch, **Dr. William C. Roberts**	10	3E30	496-5203
Chief, Pulmonary Branch, **Dr. Ronald G. Crystal**	10	6D04	496-1597
Chief, Surgery Branch, **Dr. Andrew G. Morrow**	10	6N252	496-4285
Chief, Laboratory of Biochemical Genetics, **Dr. Marshall W. Nirenberg**	36	1C27	496-2401
Chief, Laboratory of Biochemistry, **Dr. Earl R. Stadtman**	3	222	496-4096
Chief, Laboratory of Cell Biology, **Dr. Edward Korn**	3	B122	496-1616
Chief, Laboratory of Cellular Metabolism, **Dr. Martha Vaughan**	10	5N307	496-4554
Chief, Laboratory of Chemical Pharmacology, **Dr. James R. Gillette**	10	8N117	496-2593
Chief, Laboratory of Chemistry, **Dr. Henry M. Fales**	10	7N322	496-2135
Chief, Laboratory of Experimental Atherosclerosis **(Vacant)**	10	5N204	496-4826
Chief, Laboratory of Kidney and Electrolyte Metabolism, **Dr. Maurice B. Burg**	10	6N307	496-3187
Chief, Laboratory of Technical Development, **Dr. Robert L. Bowman**	10	5D18	496-2557

For locating personnel not listed, the general information number is 301-496-4000. For direct dialing, the area code is 301.

FE—Federal Building, 7550 Wisconsin Avenue, Bethesda, Maryland 20205.
WW—Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20205.

Location of Buildings Occupied by NHLBI Personnel*



*Not to scale.

2. National Heart, Lung, and Blood Institute Program Structure

The National Heart, Lung, and Blood Institute, in accordance with the requirements of the National Heart, Blood Vessel, Lung, and Blood Act of 1972 (Public Law 92-423), developed a National Program Plan in 1973 to expand and coordinate activities in an accelerated attack against heart, blood vessel, lung, and blood diseases. The National Program Plan led to the establishment of a rational program structure that presently consists of 20 elements as shown in the table below.

The program strategy employed by NHLBI for any individual disease consists of an ordered sequence including

- acquisition of new knowledge (basic and clinical research),
- testing and evaluation of promising hypotheses (clinical trials), and
- application of existing knowledge (education, demonstration, and control).

Implementation of the National Program according to the strategy above is carried out by the three categorical Divisions:

- Heart and Vascular Diseases,
- Lung Diseases, and
- Blood Diseases and Resources.

The Institute's categorical Divisions operate a balanced program, with each Division pursuing its scientific mission and all Divisions cooperating to pursue common goals in areas such as prevention, education, and control. The programs are implemented through a variety of mechanisms, including regular research grants, program projects, contracts, centers, and training programs. Brief descriptions of the divisional programs follow.

Heart and Blood Vessel Diseases

Cardiovascular diseases are the number one cause of death in the United States. They account for 50

National Heart, Blood Vessel, Lung, and Blood Program

HEART AND BLOOD VESSEL DISEASES	LUNG DISEASES	BLOOD DISEASES AND RESOURCES
Arteriosclerosis*	Structure and Function of the Lung	Bleeding and Clotting Disorders
Hypertension	Chronic Obstructive Lung Diseases	Disorders of the Red Blood Cell
Cerebrovascular Disease	Pediatric Pulmonary Diseases	Sickle Cell Disease
Coronary Heart Disease	Fibrotic and Immunologic Interstitial Lung Diseases	Blood Resources
Peripheral Vascular Diseases	Respiratory Failure	
Arrhythmias	Pulmonary Vascular Diseases	
Heart Failure and Shock		
Congenital and Rheumatic Heart Diseases		
Cardiomyopathies and Infections of the Heart		
Circulatory Assistance		

* Although NHLBI does not have a direct programmatic responsibility for diabetes mellitus, it does support investigations on the metabolic effects and cardiovascular consequences of diabetes.

percent of all deaths and two-thirds of all deaths among people over 65 years of age. Of the 40 million Americans who have diseases of the heart and blood vessels, an estimated 35 million suffer from hypertension, 4 million from coronary heart disease, and 1.8 million from rheumatic heart disease.

Activities of the Heart and Blood Vessel Diseases program reflect the National Plan strategy of progressively moving programs from basic research through testing to application, in parallel with prevention and control activities. Multidisciplinary programs are supported to advance basic knowledge of disease and to generate the most effective methods of clinical management and prevention through Specialized Centers of Research (SCORs). Research results are applied and tested in clinical trials. One such trial is the Beta-Blocker Heart Attack Trial, which is designed to determine whether the regular administration of propranolol (a beta-blocking agent) to people who have had at least one documented myocardial infarction will result in a significant reduction in mortality from all causes over the followup period. Prevention, education, and control programs are typified by the National High Blood Pressure Education Program, which is directed toward both medical and nonmedical populations.

Lung Diseases

Lung diseases account for well over 100,000 deaths annually and cost the economy almost $20 billion. Chronic respiratory diseases affect an estimated 14 million Americans each year.

NHLBI focuses on three specific approaches in its study of lung diseases: (1) research on the structure and function of the lung, (2) expansion and development of the knowledge base for specific lung diseases that constitute national health problems, and (3) application of available technical resources to solve specific and immediate problems related to lung diseases, as in the conduct of clinical trials. Special emphasis is being placed on prevention programs in the area of lung diseases. As required by legislation, NHLBI applies not less than 15 percent of its financial resources to programs related to lung diseases.

Blood Diseases and Blood Resources

NHLBI's programs in blood diseases and resources have as their goals

- reduction of morbidity and mortality due to diseases of the blood, and
- provision of an adequate supply of safe blood at reasonable cost.

Problems of the blood are intimately related to cardiovascular and pulmonary problems. Thrombosis of the renal blood vessels contributes to kidney failure. Arterial thrombosis and cerebral hemorrhage play major roles in stroke. Venous thrombosis may lead to pulmonary embolism, which causes 50,000 deaths and the hospitalization of approximately 300,000 persons each year. Hemophilia, which affects some 12,000 persons, requires costly treatment throughout the lifetime of the patient and places one of the single largest demands upon the nation's blood resources. Approximately 2 million individuals, primarily blacks, carry the sickle cell trait, and somewhat fewer than 50,000 individuals suffer from sickle cell disease.

In addition to supporting research directed at alleviating these disease problems, NHLBI supports and coordinates programs to ensure an adequate and safe supply of blood and blood products. Legislation requires that not less than 15 percent of the Institute's funds be used for research on blood diseases and blood resources.

Interagency Technical Committee

In addition to the operation of its categorical programs, the Institute coordinates those aspects of all Federal health programs and activities related to heart, blood vessel, lung, and blood diseases and blood resources through the Interagency Technical Committee (IATC). Sixteen Federal agencies whose activities relate to the National Program participate on this committee under the chairmanship of the Director of NHLBI.

The IATC has organized the following six working groups which draw their membership primarily from the program management level of the participating agencies:

- Cardiovascular Biomedical Engineering,
- Sickle Cell Disease,
- Nutrient Composition of Foods,
- Blood Substitutes and Blood Resources,
- High Blood Pressure Control, and
- Smoking and Heart, Lung, and Blood Diseases.

These working groups convene three or four times annually at planned workshops to discuss specific aspects of a problem area. Highlights of particular agency programs and projects are discussed, mutual problems are identified, technical advice is provided, and opportunities for coordination or implementation of new collaborative initiatives are developed by each working group and presented to the IATC membership. The full IATC meets at least twice a year.

3. NHLBI Highlights: Important Events in NHLBI History

June 16, 1948. President Harry S. Truman signs the National Heart Act, creating the National Heart Institute (NHI) in the Public Health Service, with the National Advisory Heart Council as its advisory body.

July 7, 1948. Dr. Paul Dudley White is selected to be "Executive Director of the National Advisory Heart Council and Chief Medical Advisor to the National Heart Institute" under Section 4b of the National Heart Act.

August 1, 1948. NHI is established as one of the National Institutes of Health by Surgeon General Leonard A. Scheele. As legislated in the National Heart Act, NHI assumes responsibility for heart research, training, and administration. Intramural research projects in cardiovascular diseases and gerontology conducted elsewhere in NIH are transferred to NHI. The Director of NHI assumes all leadership for the total PHS heart program. Dr. Cassius J. Van Slyke is appointed as the first Director of NHI.

August 29, 1948. Surgeon General Scheele announces the membership of the first National Advisory Heart Council. Varying terms of membership for the 16-member Council commence September 1.

September 8, 1948. The National Advisory Heart Council holds its first meeting.

January 1949. Cooperative Research Units are established at four institutions: the University of California, the University of Minnesota, Tulane University, and Massachusetts General Hospital. Pending completion of NHI's own research organization and facilities, the Units are jointly financed by NIH and the institutions.

July 1, 1949. The NHI Intramural Research Program is established and organized on three general research levels consisting of three laboratory sections, five laboratory-clinical sections, and four clinical sections.

The Heart Disease Epidemiology Study at Framingham, Massachusetts, is transferred from the Bureau of State Services to PHS to NHI.

January 18-20, 1950. NHI and the American Heart Association jointly sponsor the first National Conference on Cardiovascular Diseases in Washington, D.C., to summarize current knowledge and to make recommendations concerning further progress against heart and blood vessel diseases.

December 1, 1952. Dr. James Watt is appointed the Director of NHI, succeeding Dr. Van Slyke, who is appointed as Associate Director of NIH.

July 6, 1953. The Clinical Center admits its first patient for heart disease research.

July 1, 1957. The first members of NHI's Board of Scientific Counselors begin their terms. The Board was established in 1956 "to provide advice on matters of general policy, particularly from a long-range viewpoint, as they relate to the intramural research program."

February 19, 1959. The American Heart Association and NHI present a report to the Nation—"A Decade of Progress Against Cardiovascular Disease"—at the Department of Commerce Auditorium in Washington.

April 21, 1961. The President's Conference on Heart Disease and Cancer, whose participants on March 15 were requested by President John F. Kennedy to assist "in charting the Government's further role in a National attack on these diseases," convenes at the White House and submits its report.

September 11, 1961. Dr. Ralph E. Knutti is appointed Director of NHI, succeeding Dr. Watt, who becomes head of PHS's international activities.

December 30, 1963. February is designated as "American Heart Month" by a unanimous joint resolution of the Congress, and is approved by President Lyndon B. Johnson.

November 22-24, 1964. The Second National Conference on Cardiovascular Diseases is held in Washington, D.C., cosponsored by the American Heart Association, NHI, and the Heart Disease Control Program of PHS, to evaluate progress since the 1950 Conference and to assess needs and goals for continued and accelerated growth against heart and blood vessel diseases.

December 9, 1964. The President's Commission on Heart Disease, Cancer, and Stroke, appointed by President Lyndon B. Johnson on March 7, 1964, submits its report to "recommend steps that can be taken to reduce the burden and incidence of these diseases."

August 1, 1965. Dr. William H. Stewart assumes the Directorship of NHI upon Dr. Knutti's retirement.

September 24, 1965. Dr. William H. Stewart, NHI Director, is named Surgeon General of PHS.

October 6, 1965. A fiscal year 1966 supplemental appropriations act (P.L. 89-199) allocates funds to implement the recommendations of the President's Commission on Heart Disease, Cancer, and Stroke that fall within existing legislative authorities. NHI is given $5.05 million for new clinical training programs, additional graduate training grants, cardiovascular clinical research centers on cerebrovascular disease and thrombotic and hemorrhagic disorders, and planning grants for future specialized cardiovascular centers.

March 8, 1966. Dr. Robert P. Grant succeeds Dr. Stewart as Director of NHI. Dr. Grant serves until his death, on August 15, 1966.

November 6, 1966. President Johnson announces the appointment of Dr. Donald S. Fredrickson as Director of NHI.

March 15. 1968. Dr. Theodore Cooper succeeds Dr. Fredrickson as NHI Director, the latter electing to return to research activities with the Institute.

October 16, 1968. Dr. Marshall W. Nirenberg is awarded a Nobel Prize in Physiology for discovering the key to deciphering the genetic code. Dr. Nirenberg, Chief of the NHI Laboratory of Biochemical Genetics, is the first NIH Nobel Laureate and first Federal employee to receive a Nobel Prize.

October 26, 1968. NHI receives the National Hemophilia Foundation's Research and Scientific Achievement Award for its "medical leadership . . . tremendous stimulation and support of research activities directly related to the study and treatment of hemophilia."

November 14, 1968. NHI's Twentieth Anniversary is commemorated at the White House under the auspices of President Johnson and other distinguished guests.

August 12, 1969. Major NHI reorganization plan creates five program branches along disease category lines in extramural programs (arteriosclerotic disease, cardiac disease, pulmonary disease, hypertension and kidney diseases, and thrombosis and hemorrhagic diseases), a Therapeutic Evaluations Branch and Epidemiology Branch under the Associate Director for Clinical Applications, and three offices in the Office of the Director (heart information, program planning, and administrative management).

November 10, 1969. The National Heart Institute is redesignated by DHEW Secretary as the National Heart and Lung Institute (NHLI), reflecting a broadening scope of its functions.

July 9, 1970. Dr. Theodore Cooper, Director of NHLI, convenes a task force to develop a long-range plan to combat arteriosclerosis. The goal is a program aimed at prevention and control of the disorder and effective treatment of its complications.

February 18, 1971. President Richard M. Nixon's Health Message to Congress identifies sickle cell anemia as a high priority disease target and calls for increased Federal expenditures. DHEW Assistant Secretary for Health and Scientific Affairs is assigned lead-agency responsibility for coordination of National Sickle Cell Disease Program at NIH and NHLI.

June 1971. The Report of the Task Force on Arteriosclerosis summarizes the results of one year of deliberations. Published in two volumes, Volume I deals with general aspects of the problem and presents the major conclusions and recommendations in nontechnical language; Volume II contains technical information on the current state of knowledge and conclusions and recommendations in each of the following areas: atherogenesis, presymptomatic atherosclerosis, overt atherosclerosis, and rehabilitation.

May 16, 1972. The National Sickle Cell Anemia Control Act (P.L. 92-294) provides for a national diagnosis, control, treatment, and research program. The Act does not mention NHLI, but has special pertinence because NHLI has been designated to coordinate the National Sickle Cell Disease Program.

June 12, 1972. HEW Secretary Elliot Richardson approves a nationwide program for high blood pressure information and education, and appoints two committees to implement the program: the Hypertension Information and Education Advisory Committee, chaired by the Director, NIH; and the Intra-agency Working Group, chaired by the Director, NHLI. A High Blood Pressure Information Center is established within the NHLI Office of Information to collect and disseminate public and professional information about the disease.

July 14, 1972. HEW Secretary Richardson approves a reorganization of NHLI, elevating the Institute to Bureau status within NIH and comprising seven division-level components: Office of Director, Division of Heart and Vascular Diseases, Division of Lung Diseases, Division of Blood Diseases and Resources, Division of Intramural Research, Division of Technological Applications, and Division of Extramural Affairs.

September 19, 1972. The National Heart, Blood Vessel, Lung, and Blood Act of 1972 (P.L. 92-423) expands the authority of the Institute to advance the national attack upon these diseases. The Act calls for intensified and coordinated Institute activities to be planned by the Director and reviewed by the NHLI Advisory Council.

July 24, 1973. The first Five-Year Plan for the National Heart, Blood Vessel, Lung, and Blood Program is transmitted to the President and to Congress.

December 17, 1973. The National Heart and Lung Advisory Council completes its first Annual Report on the on the National Program to the President for transmittal to Congress.

February 13, 1974. The Director of NHLI forwards his First Annual Report on the National Program to the President for transmittal to Congress.

April 5, 1974. The HEW Assistant Secretary for Health authorizes release of the Report to the President by the President's Advisory Panel on Heart Disease. The report of the 20-member panel, chaired by Dr. John S. Millis, includes a survey of the problem of heart and blood vessel disorders and panel recommendations to reduce illness and death from these disorders.

August 2, 1974. The Secretary of HEW approves regulations governing the establishment, support, and operation of National Research and Demonstration Centers for heart, blood vessel, lung, and blood diseases, which implement Section 415(b) of the PHS Act, as amended by the National Heart, Blood Vessel, Lung, and Blood Act of 1972: 1) to carry out basic and clinical research on heart, blood vessel, lung, and blood diseases; 2) to provide demonstrations of advanced methods of prevention, diagnosis, and treatment; and 3) to supply a training source for scientists and physicians concerned with the diseases.

September 16, 1975. Dr. Robert I. Levy is appointed Director of NHLI, succeeding Dr. Theodore Cooper, who was appointed HEW Deputy Assistant Secretary for Health on April 19, 1974.

June 25, 1976. Legislation amending the Public Health Service Act (P.L. 94-278) changes the name of the National Heart and Lung Institute to the National Heart, Lung, and Blood Institute (NHLBI) and provides for an expansion in blood-related activities within the Institute and throughout the National Heart, Blood Vessel, Lung, and Blood Program.

August 1, 1977. The Biomedical Research Extension Act of 1977 (P.L. 95-83) reauthorizes the programs of the National Heart, Lung, and Blood Institute, with continued emphasis on both the National Program and related prevention and dissemination activities.

February 1978. The National Heart, Lung, and Blood Institute and the American Heart Association jointly celebrate their Thirtieth Anniversary.

September 1979. The Task Force on Hypertension, established in September 1975 to assess the current state of hypertension research, completes its indepth survey and recommendations for improved prevention, treatment, and control in 14 major areas. These recommendations are intended to guide NHLBI in its future efforts.

November 1979. The results of the Hypertension Detection and Follow-up Program, a major clinical trial started in 1971, provide evidence that tens of thousands of lives are being saved through treatment of mild hypertension and that perhaps thousands more could be saved annually if all people with mild hypertension were under treatment.

November 21, 1980. The Albert Lasker Special Public Health Award is presented to the National Heart, Lung, and Blood Institute for its Hypertension Detection and Follow-up Program, "which stands alone among clinical studies in its profound potential benefit to millions of people."

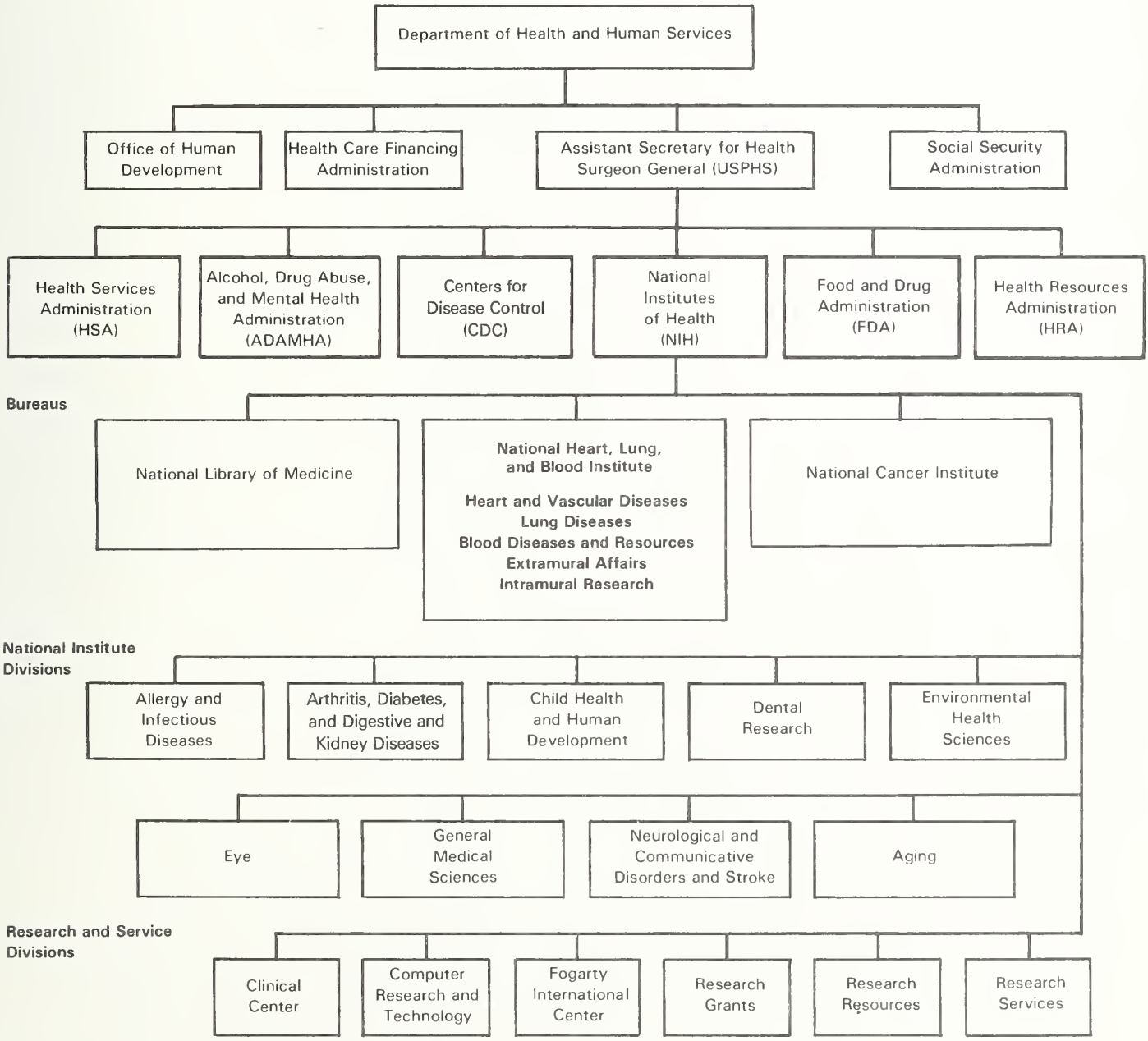
December 17, 1980. The Health Programs Extension Act of 1980 (P.L. 96-538), reauthorizes the National Heart, Lung, and Blood Institute, with continued emphasis on both the National Program and related prevention programs.

September 8, 1981. The working group on Arteriosclerosis, convened in 1978 to assess present understanding, highlight unresolved problems, and emphasize opportunities for future research in arteriosclerosis, completes its report. Volume I of the report presents conclusions and recommendations in nontechnical language. Volume II provides indepth substantial basis for the conclusions and recommendations contained in Volume I.

October 2, 1981. The Beta-Blocker Heart Attack Clinical Trial demonstrates benefits to those in the trial who received the drug propranolol, compared to the control group.

4. NHLBI Organizational Structure

NHLBI Location in DHHS Structure



The National Heart, Lung, and Blood Institute

Provides leadership for a national program in diseases of the heart, blood vessels, blood, and lungs; in the use of blood; and in the management of blood resources.

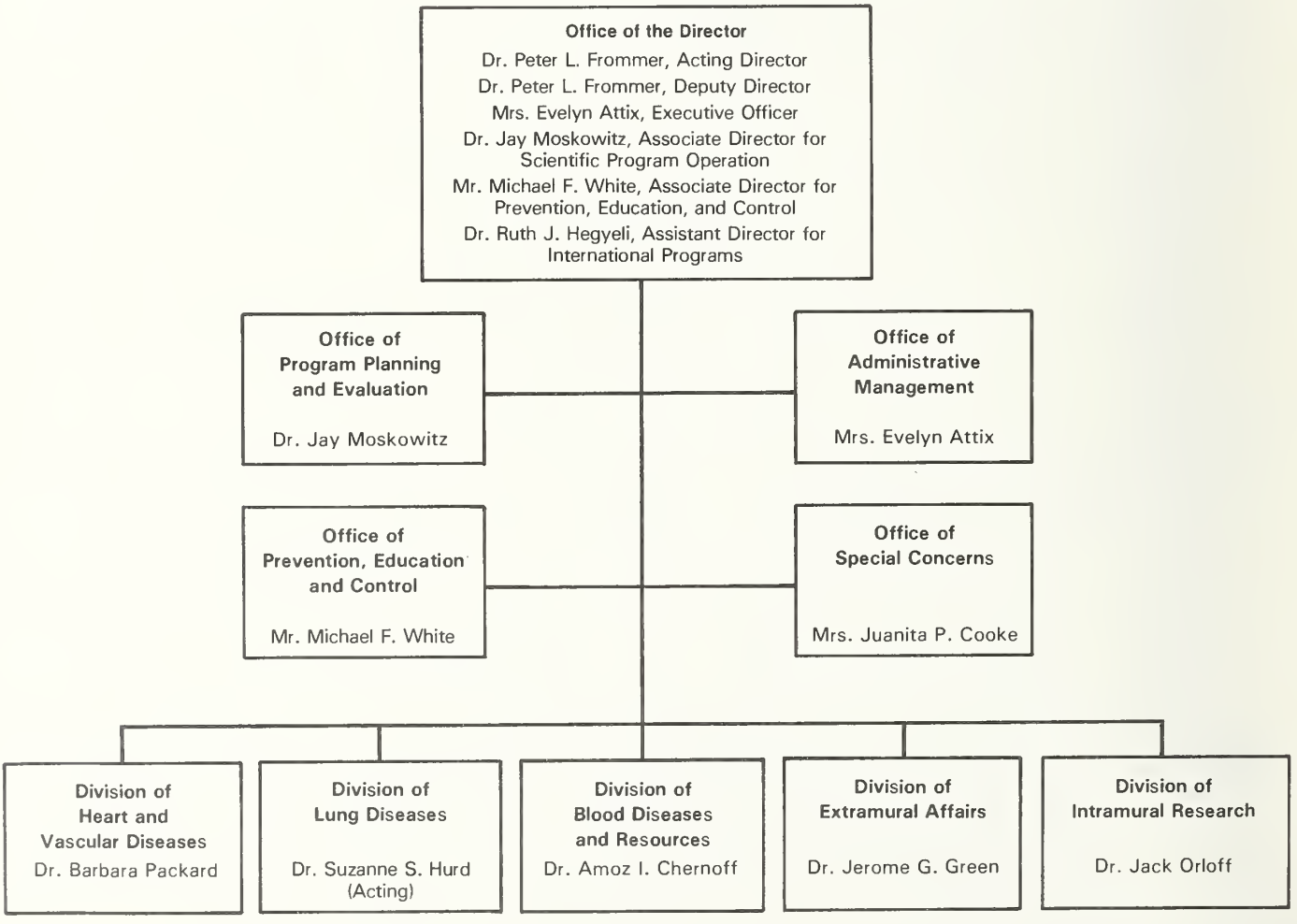
Plans, conducts, fosters, and supports an integrated and coordinated program of research, investigations, clinical trials, and demonstrations relating to the causes, prevention, and methods of diagnosis and treatment (including emergency medical treatment) of heart, blood vessel, lung, and blood diseases through research performed in its own laboratories and through contracts and research grants to scientific institutions and to individual scientists.

Plans and directs research on the development, trial, and evaluation of drugs and devices relating to the prevention and treatment of these diseases and the rehabilitation of patients suffering from them.

Conducts studies and research in the clinical use of blood and all aspects of the management of blood resources, and supports training in fundamental sciences and clinical disciplines in basic and clinical research programs relating to heart, blood vessel, blood, and lung diseases.

Works with the other research Institutes and all Federal agency programs relating to the above diseases, including programs in hypertension, stroke, respiratory distress, and sickle cell anemia.

Conducts educational activities, including the collection and dissemination of educational materials on these diseases, with emphasis on their prevention, for health professionals and the lay public. Maintains continuing relationships with institutions and professional associations; international, national, state, and local officials; and voluntary agencies and organizations working in these areas.

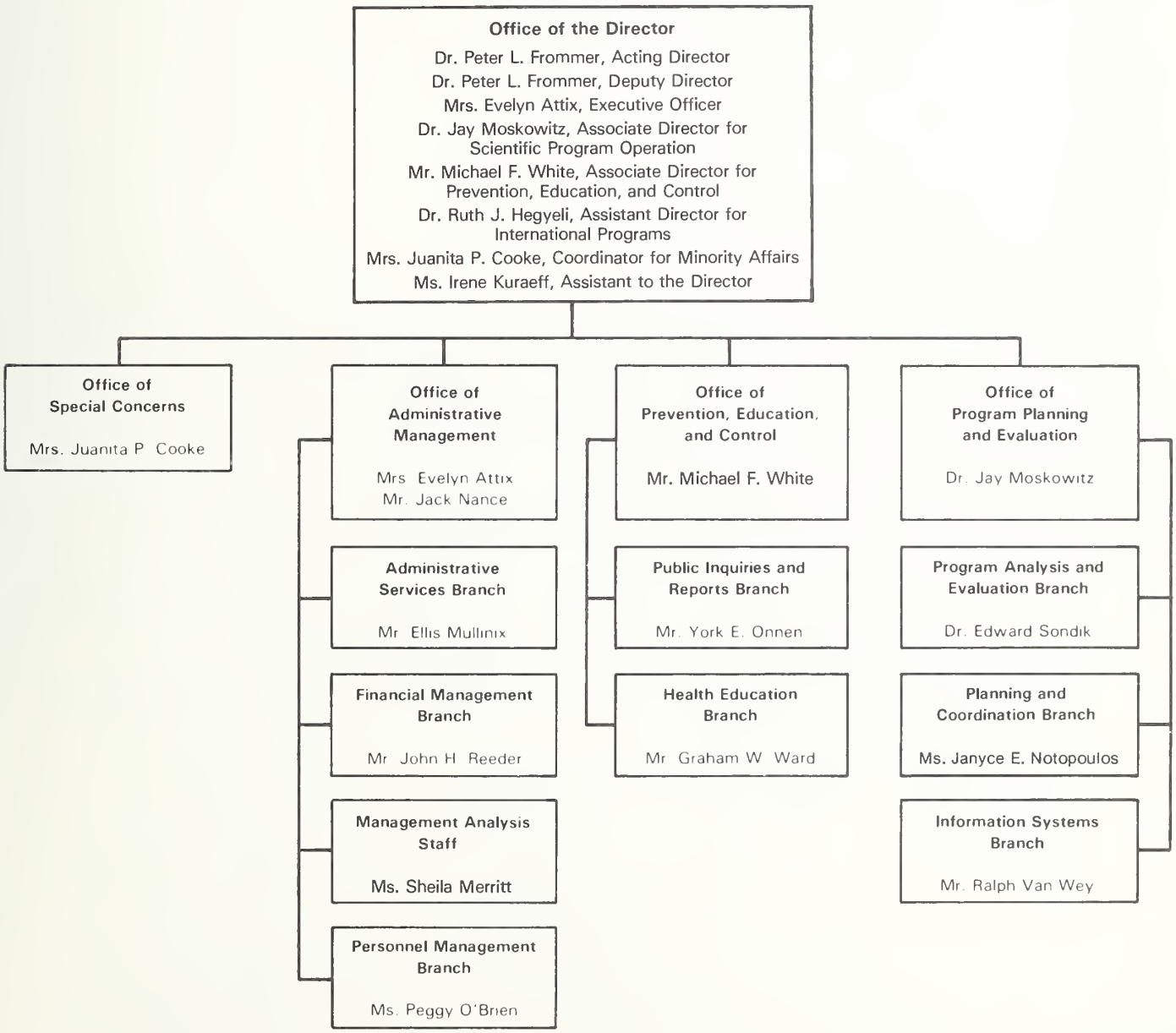

Office of the Director
Dr. Peter L. Frommer, Acting Director
Dr. Peter L. Frommer, Deputy Director
Mrs. Evelyn Attix, Executive Officer
Dr. Jay Moskowitz, Associate Director for Scientific Program Operation
Mr. Michael F. White, Associate Director for Prevention, Education, and Control
Dr. Ruth J. Hegyeli, Assistant Director for International Programs
Office of Program Planning and Evaluation
Dr. Jay Moskowitz
Office of Administrative Management
Mrs. Evelyn Attix
Office of Prevention, Education and Control
Mr. Michael F. White
Office of Special Concerns
Mrs. Juanita P. Cooke
Division of Heart and Vascular Diseases
Dr. Barbara Packard
Division of Lung Diseases
Dr. Suzanne S. Hurd (Acting)
Division of Blood Diseases and Resources
Dr. Amoz I. Chernoff
Division of Extramural Affairs
Dr. Jerome G. Green
Division of Intramural Research
Dr. Jack Orloff

Office of the Director

Develops and provides leadership for the National Heart, Blood Vessel, Lung, and Blood Program, including the coordination of all Federal health programs relating to the above diseases as authorized. Provides overall planning, direction, coordination, and evaluation of the Institute's programs.

Collects, develops, and disseminates information on the above diseases, with emphasis upon factors in their prevention, and conducts and fosters educational programs for scientists and clinicians. Provides leadership in the transfer and assessment of information for the scientific community and the lay public.

Establishes internal Institute policy for program and administrative operations, and maintains surveillance over their execution.


Office of the Director
Dr. Peter L. Frommer, Acting Director
Dr. Peter L. Frommer, Deputy Director
Mrs. Evelyn Attix, Executive Officer
Dr. Jay Moskowitz, Associate Director for Scientific Program Operation
Mr. Michael F. White, Associate Director for Prevention, Education, and Control
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Mrs. Juanita P. Cooke, Coordinator for Minority Affairs
Ms. Irene Kuraeff, Assistant to the Director
Office of Special Concerns
Mrs. Juanita P Cooke
Office of Administrative Management
Mrs Evelyn Attix
Mr. Jack Nance
Administrative Services Branch
Mr Ellis Mullinix
Financial Management Branch
Mr John H Reeder
Management Analysis Staff
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Office of Prevention, Education, and Control
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Public Inquiries and Reports Branch
Mr. York E. Onnen
Health Education Branch
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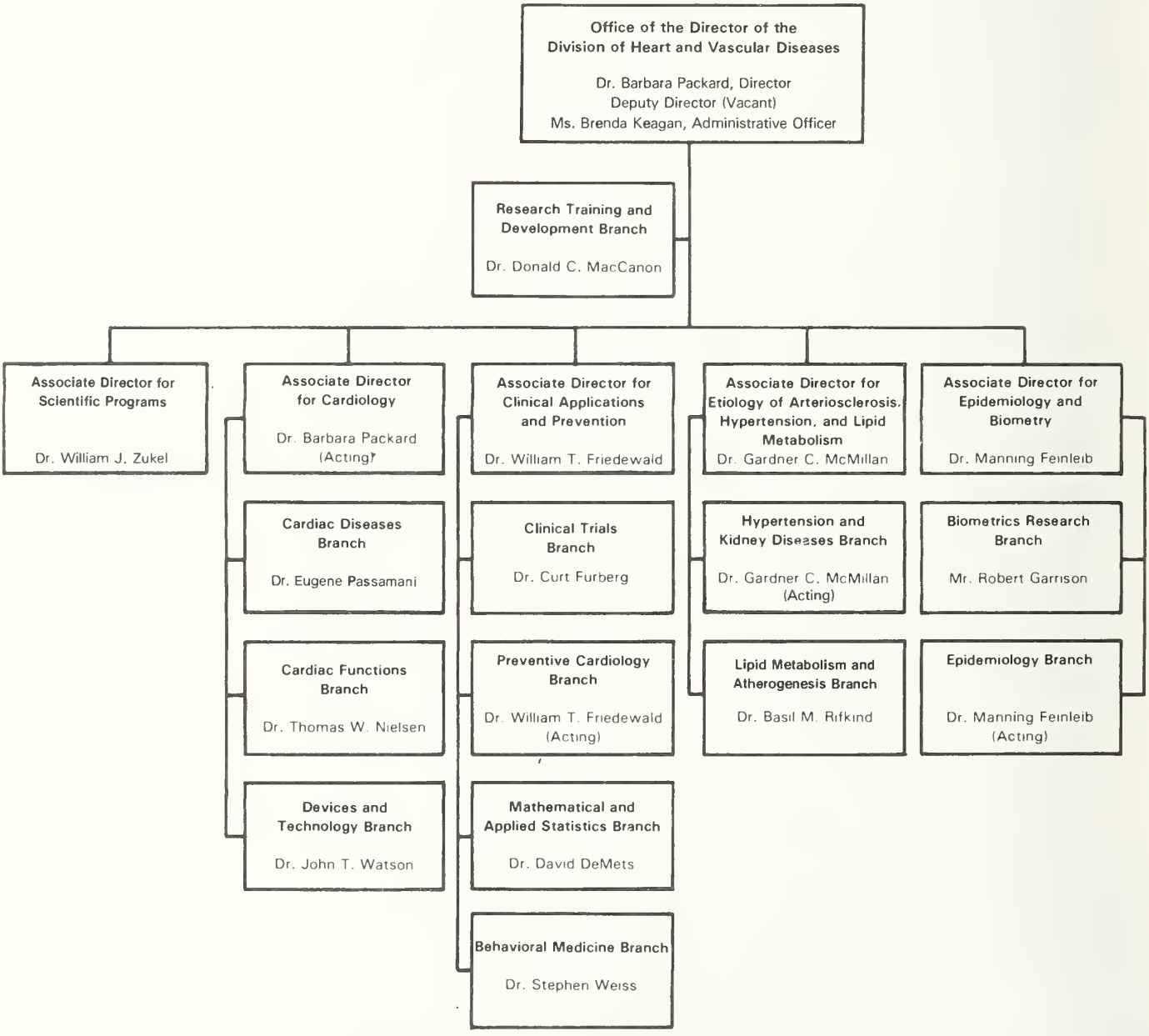
Office of Program Planning and Evaluation
Dr. Jay Moskowitz
Program Analysis and Evaluation Branch
Dr. Edward Sondik
Planning and Coordination Branch
Ms. Janyce E. Notopoulos
Information Systems Branch
Mr. Ralph Van Wey

Division of Heart and Vascular Diseases

Plans and directs the Institute's research grant, contract, and training programs in heart and vascular diseases, encompassing basic research, targeted research, clinical trials and demonstrations, national cardiovascular centers, technological development, and application of research findings.

Maintains surveillance over developments in its program area, and assesses the national need for research into the causes, prevention, diagnosis, and treatment of cardiovascular diseases; technological development; application of research findings; and manpower training in these areas.

Maintains the necessary scientific management capability to foster and guide an effective attack upon cardiovascular diseases.

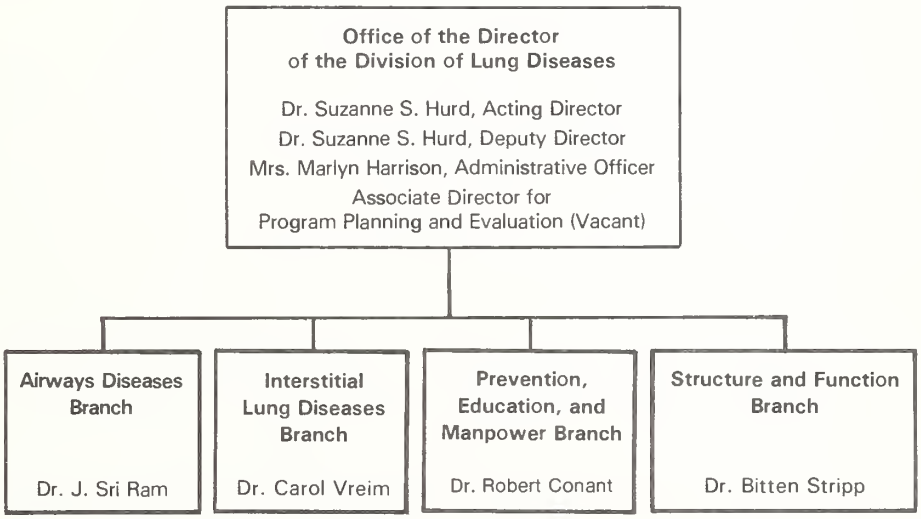

Office of the Director of the Division of Heart and Vascular Diseases
Dr. Barbara Packard, Director
Deputy Director (Vacant)
Ms. Brenda Keagan, Administrative Officer
Research Training and Development Branch
Dr. Donald C. MacCanon
Associate Director for Scientific Programs
Dr. William J. Zukel
Associate Director for Cardiology
Dr. Barbara Packard (Acting)
Cardiac Diseases Branch
Dr. Eugene Passamani
Cardiac Functions Branch
Dr. Thomas W. Nielsen
Devices and Technology Branch
Dr. John T. Watson
Associate Director for Clinical Applications and Prevention
Dr. William T. Friedewald
Clinical Trials Branch
Dr. Curt Furberg
Preventive Cardiology Branch
Dr. William T. Friedewald (Acting)
Mathematical and Applied Statistics Branch
Dr. David DeMets
Behavioral Medicine Branch
Dr. Stephen Weiss
Associate Director for Etiology of Arteriosclerosis, Hypertension, and Lipid Metabolism
Dr. Gardner C. McMillan
Hypertension and Kidney Diseases Branch
Dr. Gardner C. McMillan (Acting)
Lipid Metabolism and Atherogenesis Branch
Dr. Basil M. Rifkind
Associate Director for Epidemiology and Biometry
Dr. Manning Feinleib
Biometrics Research Branch
Mr. Robert Garrison
Epidemiology Branch
Dr. Manning Feinleib (Acting)

Division of Lung Diseases

Plans and directs the Institute's research grant, contract, and training programs in lung diseases, encompassing basic research, targeted research, clinical trials and demonstrations, national pulmonary centers, technological development, and application of research findings.

Maintains surveillance over developments in its program area, and assesses the national need for research into the causes, prevention, diagnosis, and treatment of lung diseases; technology development; application of research findings; and manpower training in these areas.

Maintains the necessary scientific management capability to foster and guide an effective attack upon lung disease.


Office of the Director
of the Division of Lung Diseases
Dr. Suzanne S. Hurd, Acting Director
Dr. Suzanne S. Hurd, Deputy Director
Mrs. Marlyn Harrison, Administrative Officer
Associate Director for
Program Planning and Evaluation (Vacant)
Airways Diseases Branch
Dr. J. Sri Ram
Interstitial Lung Diseases Branch
Dr. Carol Vreim
Prevention, Education, and Manpower Branch
Dr. Robert Conant
Structure and Function Branch
Dr. Bitten Stripp

Division of Blood Diseases and Resources

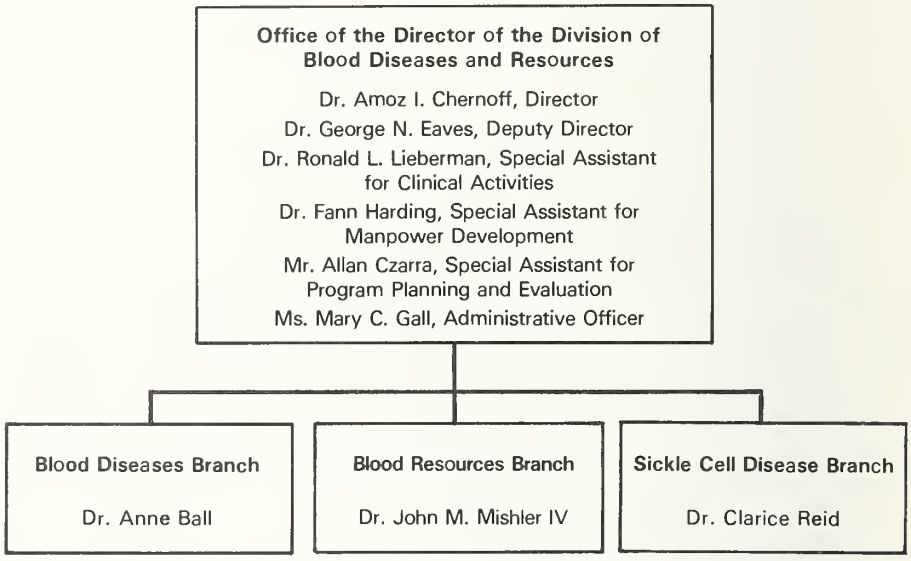
Plans and directs the Institute's research grant, contract, and training programs in blood diseases and resources, including sickle cell disease, encompassing basic research, targeted research, clinical trials and demonstrations, technological development, and application of research findings.

Maintains surveillance over developments in this program area, and assesses the national need for research into the causes, prevention, diagnosis, and treatment of blood diseases; technological development; application of research findings; and manpower training.

Conducts research and demonstrations to improve the national systems of blood procurement, management, and distribution.

Participates in Federal sickle cell disease activities, and operates a national clearinghouse for information on sickle cell disease.

Maintains the necessary scientific management capability to foster and guide an effective attack on blood diseases and to manage blood resources.


Office of the Director of the Division of Blood Diseases and Resources
Dr. Amoz I. Chernoff, Director
Dr. George N. Eaves, Deputy Director
Dr. Ronald L. Lieberman, Special Assistant for Clinical Activities
Dr. Fann Harding, Special Assistant for Manpower Development
Mr. Allan Czarra, Special Assistant for Program Planning and Evaluation
Ms. Mary C. Gall, Administrative Officer
Blood Diseases Branch
Dr. Anne Ball
Blood Resources Branch
Dr. John M. Mishler IV
Sickle Cell Disease Branch
Dr. Clarice Reid

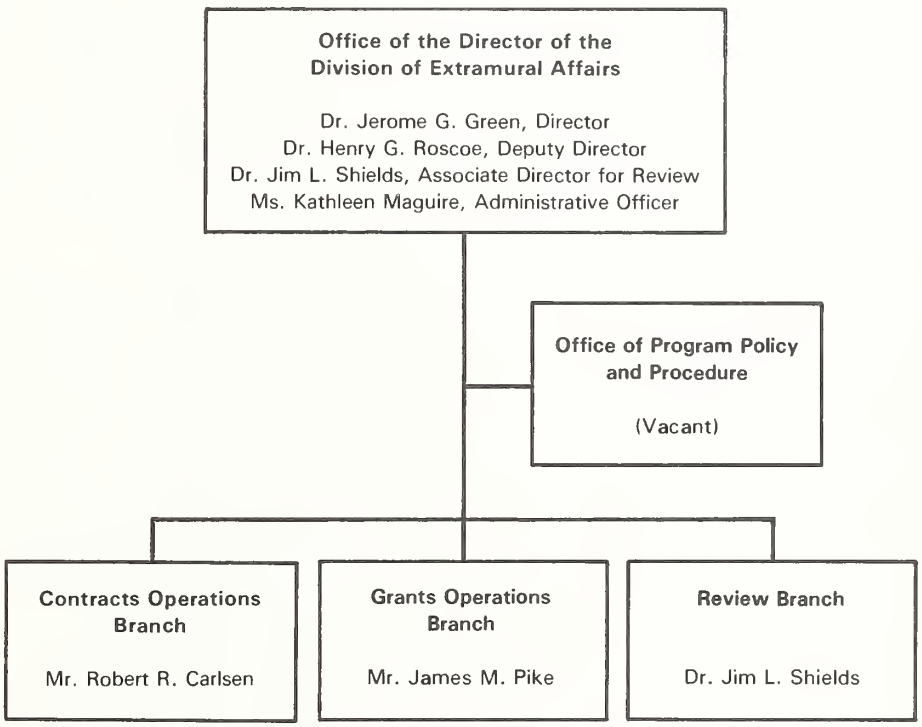
Division of Extramural Affairs

Advises the Director of NHLBI on research contract, grant, and training program policies.

Represents the Institute on overall NIH extramural and collaborative program policy committees, coordinates such policy within NHLBI, and coordinates the Institute's research grant and training programs with the National Heart, Lung, and Blood Advisory Council.

Provides grant and contract management and processing services to the Institute's program divisions.

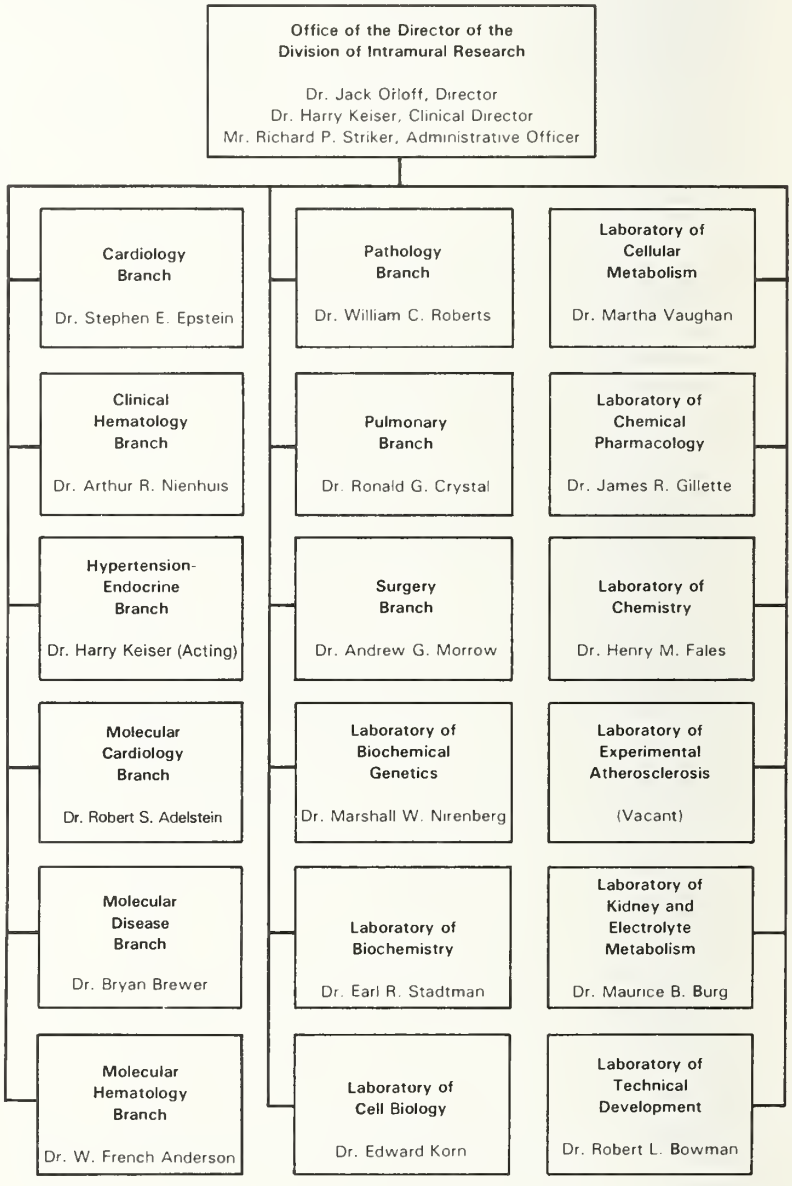
Supplies initial scientific merit review of project grants and research contracts for the Institute.


Office of the Director of the Division of Extramural Affairs
Dr. Jerome G. Green, Director
Dr. Henry G. Roscoe, Deputy Director
Dr. Jim L. Shields, Associate Director for Review
Ms. Kathleen Maguire, Administrative Officer
Office of Program Policy and Procedure
(Vacant)
Contracts Operations Branch
Mr. Robert R. Carlsen
Grants Operations Branch
Mr. James M. Pike
Review Branch
Dr. Jim L. Shields

Division of Intramural Research

Plans, conducts, and directs a program of basic laboratory and clinical research in heart, blood vessel, lung, and kidney diseases; certain blood diseases such as sickle cell anemia and hemophilia, and development of technology related to cardiovascular, pulmonary, and hematologic disorders.

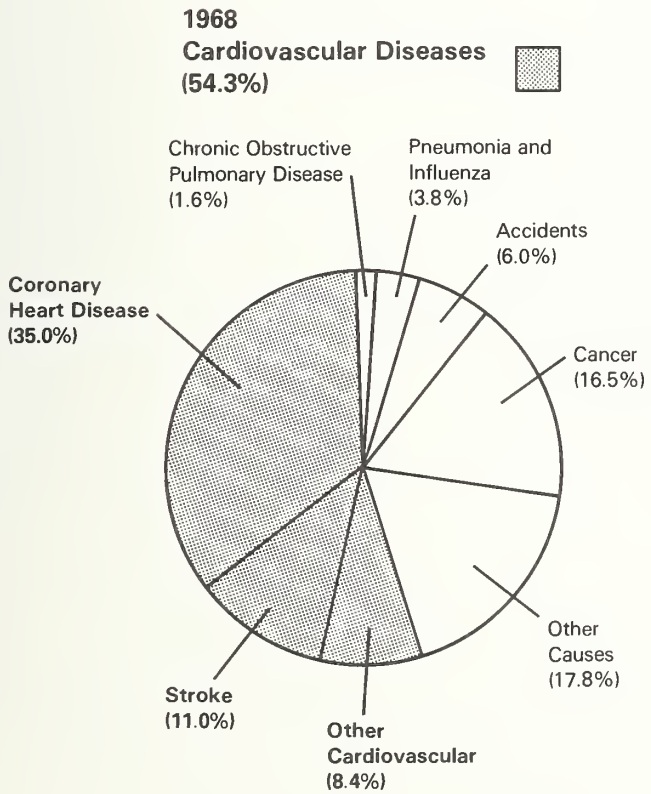
Maintains communications with other programs of the Institute to facilitate early practical application of basic research findings. Areas of major interest include the biology of experimental and clinical arteriosclerosis and its manifestations; the pathophysiology of hypertensive vascular disease; functions of the lung; clinical and experimental studies on physiological and pharmacological aspects of heart, blood, and lung diseases; and a broad program of other basic research and technical developments.

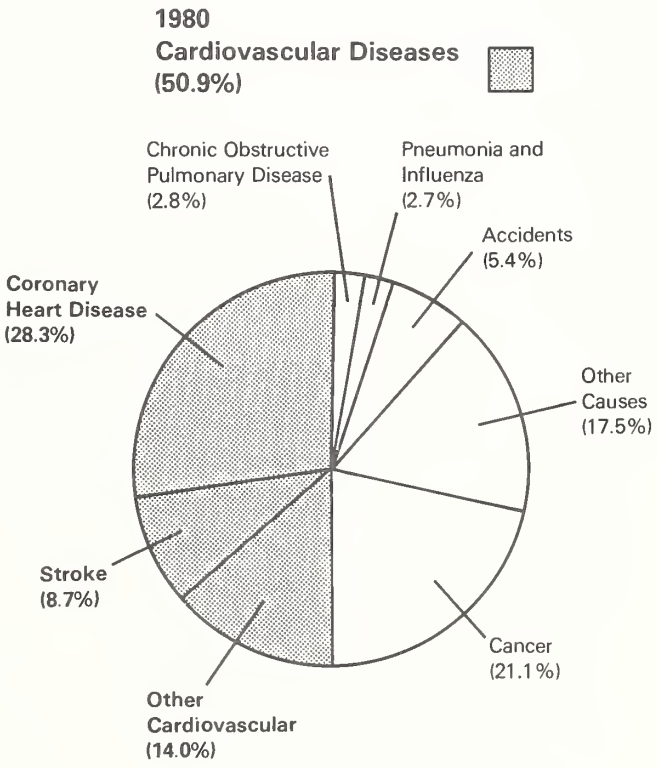


5. Disease Statistics

Deaths by Cause and Percentage of Total Deaths

Cause	Number of Deaths 1968*	1980†
Cardiovascular Diseases		
Coronary Heart Disease	674,747	566,930
Stroke	211,390	170,420
Other	162,176	274,340
Cardiovascular Subtotal	1,048,313	1,011,690
Cancer	318,547	414,320
Accidents	114,864	106,550
Pneumonia and Influenza	73,492	52,720
Chronic Obstructive Pulmonary Disease‡	30,390	55,810
Other Causes	344,476	344,910
Noncardiovascular Subtotal	881,769	974,310
Total All Causes	1,930,082	1,986,000





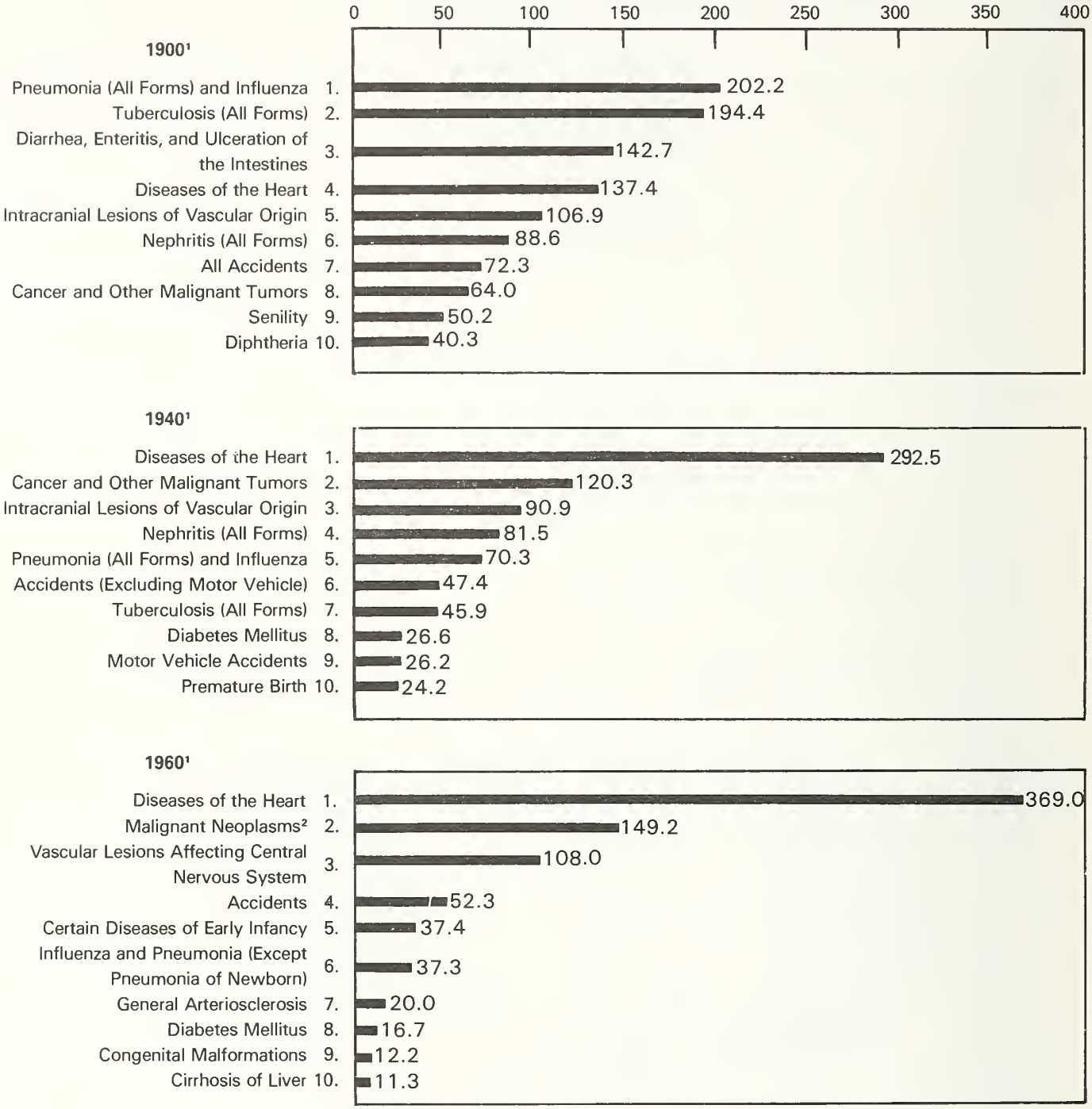
* Based on the Eighth Revision of the International Classification of Diseases.

† Provisional and based on the Ninth Revision of the International Classification of Diseases, which assigns almost 100,000 fewer deaths to coronary heart disease and results in other less serious discontinuities of trends.

‡ Coded in 1968 as Bronchitis and Emphysema.

Sources: National Center for Health Statistics and National Heart, Lung, and Blood Institute
Estimates: Percentages Do Not Add to 100% Due to Rounding.

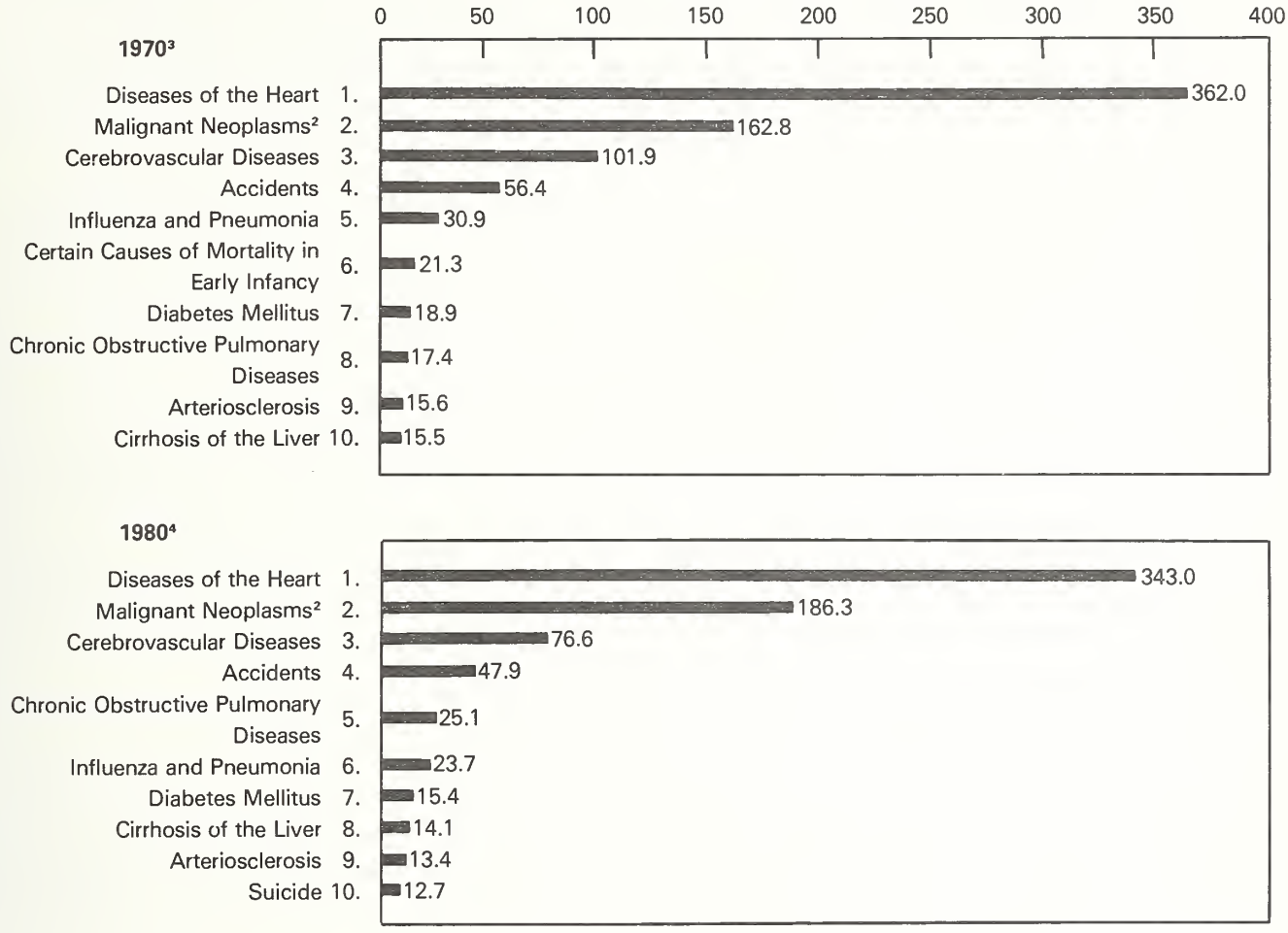
Ten Leading Causes of Death:*
Death Rates—U.S., 1900, 1940, 1960, 1970, 1979
(Rates per 100,000 Population)


0
50
100
150
200
250
300
350
400
1900[1]
Pneumonia (All Forms) and Influenza 1. 202.2
Tuberculosis (All Forms) 2. 194.4
Diarrhea, Enteritis, and Ulceration of the Intestines 3. 142.7
Diseases of the Heart 4. 137.4
Intracranial Lesions of Vascular Origin 5. 106.9
Nephritis (All Forms) 6. 88.6
All Accidents 7. 72.3
Cancer and Other Malignant Tumors 8. 64.0
Senility 9. 50.2
Diphtheria 10. 40.3
1940[1]
Diseases of the Heart 1. 292.5
Cancer and Other Malignant Tumors 2. 120.3
Intracranial Lesions of Vascular Origin 3. 90.9
Nephritis (All Forms) 4. 81.5
Pneumonia (All Forms) and Influenza 5. 70.3
Accidents (Excluding Motor Vehicle) 6. 47.4
Tuberculosis (All Forms) 7. 45.9
Diabetes Mellitus 8. 26.6
Motor Vehicle Accidents 9. 26.2
Premature Birth 10. 24.2
1960[1]
Diseases of the Heart 1. 369.0
Malignant Neoplasms[2] 2. 149.2
Vascular Lesions Affecting Central Nervous System 3. 108.0
Accidents 4. 52.3
Certain Diseases of Early Infancy 5. 37.4
Influenza and Pneumonia (Except Pneumonia of Newborn) 6. 37.3
General Arteriosclerosis 7. 20.0
Diabetes Mellitus 8. 16.7
Congenital Malformations 9. 12.2
Cirrhosis of Liver 10. 11.3

* Terminology is that used in the edition of *International List of Causes of Death* in effect at that time.

[1] Source: *Vital Statistics Rates in the United States 1900, 1960,* National Center for Health Statistics, PHS Pub. No. 1677.

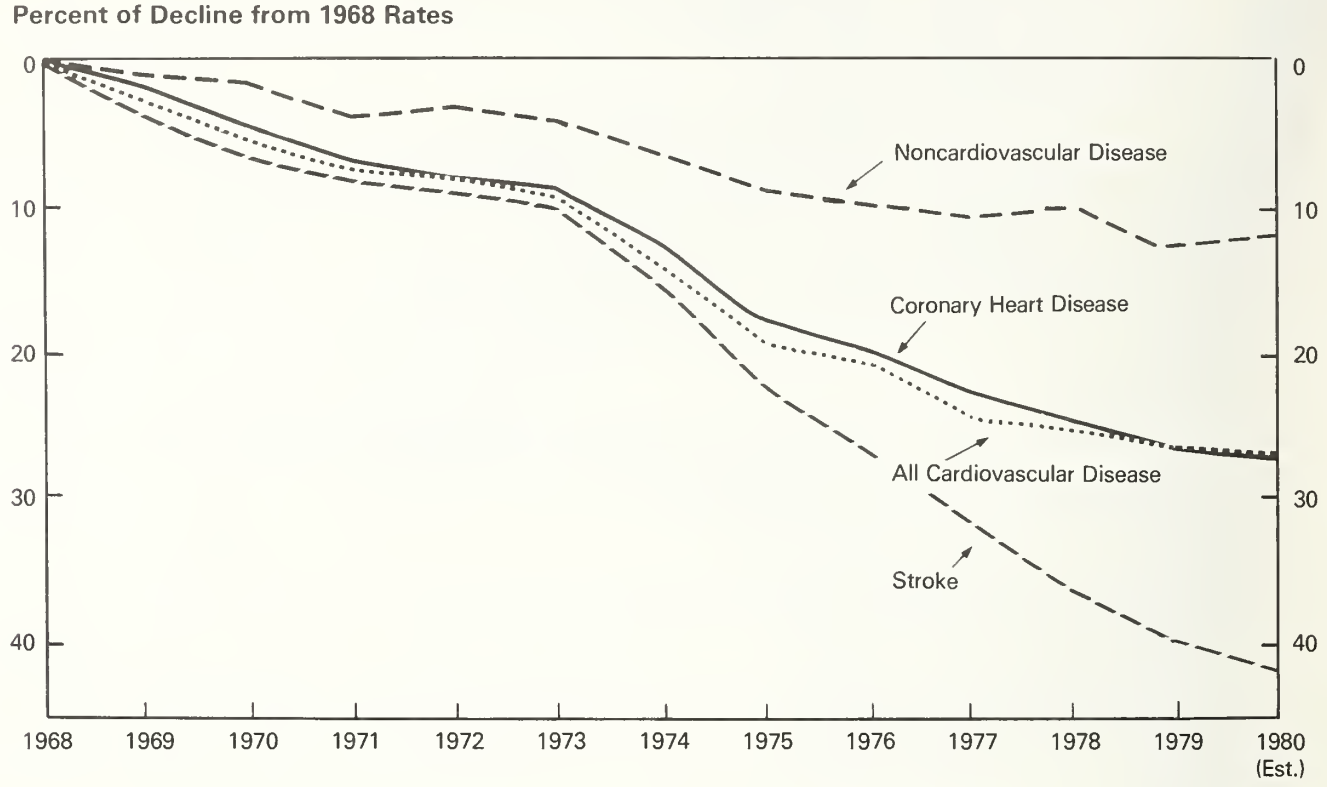
[2] Including neoplasms of lymphatic and hematopoietic tissues.



[3] Source: *Monthly Vital Statistics Report,* Vol. 22, No. 11 (Feb. 22, 1974), NCHS, and unpublished NCHS statistics.

[4] Source: Provisional Statistics, *Monthly Vital Statistics Reports,* Vol. 29, No. 13 (Sept. 17, 1981), NCHS.

Trends in Cardiovascular Disease and Noncardiovascular Disease: Decline by Age-Adjusted Death Rates, 1968-1980



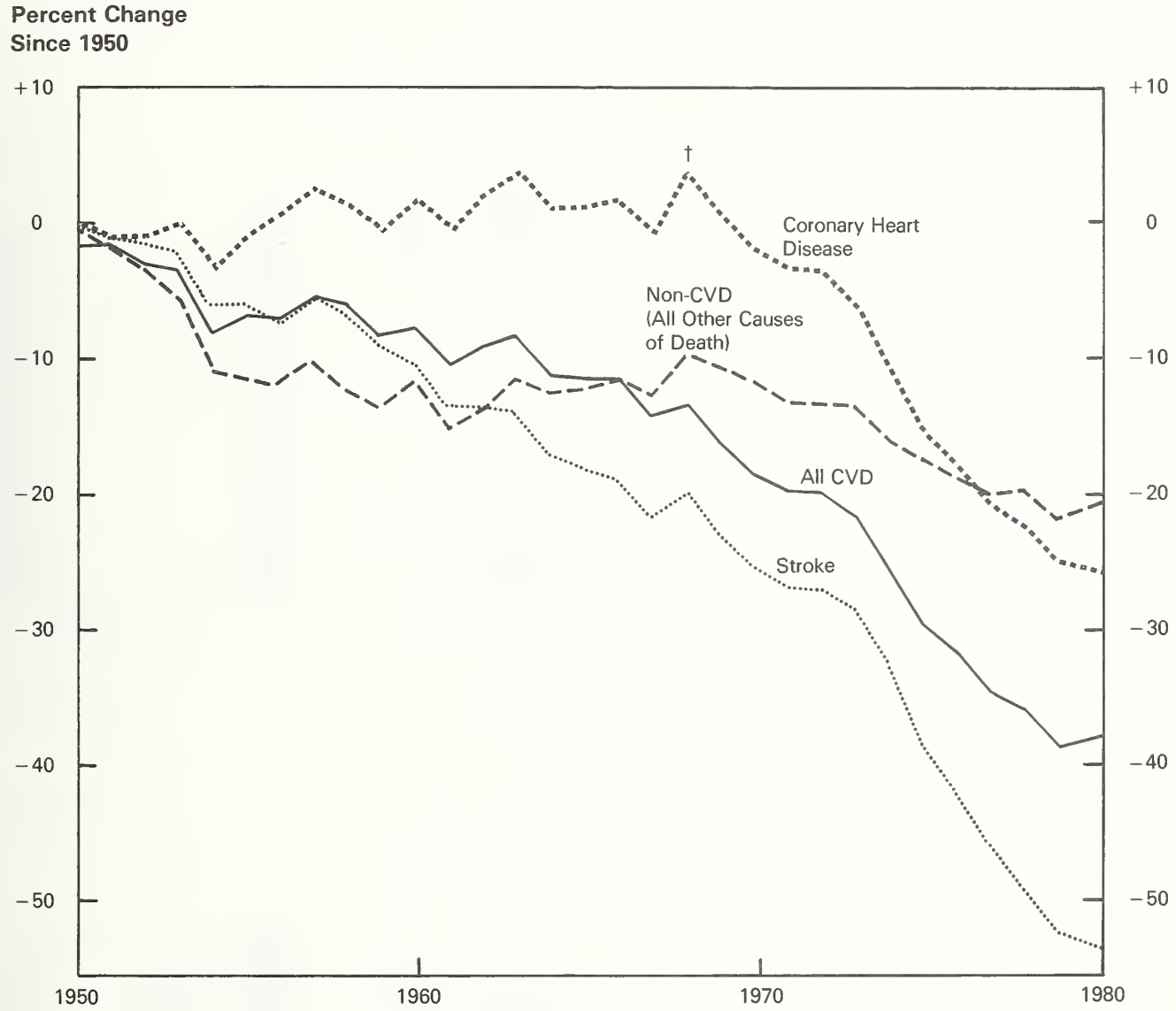
Death Rates for Cardiovascular Diseases (and Major Components) and Noncardiovascular Diseases: U.S., 1970-1979 (Rates Age-Adjusted to U.S. Population, 1940)

Year	Noncardio-vascular Diseases	Cardio-vascular Diseases	Coronary Heart Disease	Stroke	Other Cardio-vascular Diseases
1970	364.3	350.0	228.1	66.3	55.6
1971	355.5	344.4	225.1	65.2	54.1
1972	358.1	343.7	223.9	65.0	54.8
1973	356.3	336.6	218.9	63.7	54.0
1974	346.1	320.1	207.7	59.9	52.5
1975	338.0	300.3	196.1	54.5	49.7
1976	336.1	293.1	191.6	51.4	50.1
1977	329.5	282.8	185.0	48.2	49.6
1978	330.1	276.0	180.9	45.3	49.8
1979*	322.9	264.5	174.3	42.3	47.9
1980*	326.4	267.7	173.5	41.3	52.9
% Change	-10.4	-23.5	-23.9	-37.7	-4.9

* NHLBI estimate.

Source: National Center for Health Statistics: provisional data for 1979 and 1980.

Percent Change in Death Rates* Since 1950 for All Cardiovascular Diseases (CVD), Coronary Heart Disease, Stroke, and All Other Causes of Death (Non-CVD) for All Ages in the United States



Year	CVD‡	Coronary Heart Disease	Stroke	All Other Causes	Total All Causes
1950	425.6	232.2	88.8	415.9	841.5
1980	264.9	173.5	41.5	329.2	594.1
Change	−160.7	−58.7	−47.3	−86.7	−247.4
% Change	−37.8	−25.3	−53.3	−20.8	−29.4

* Age-adjusted.

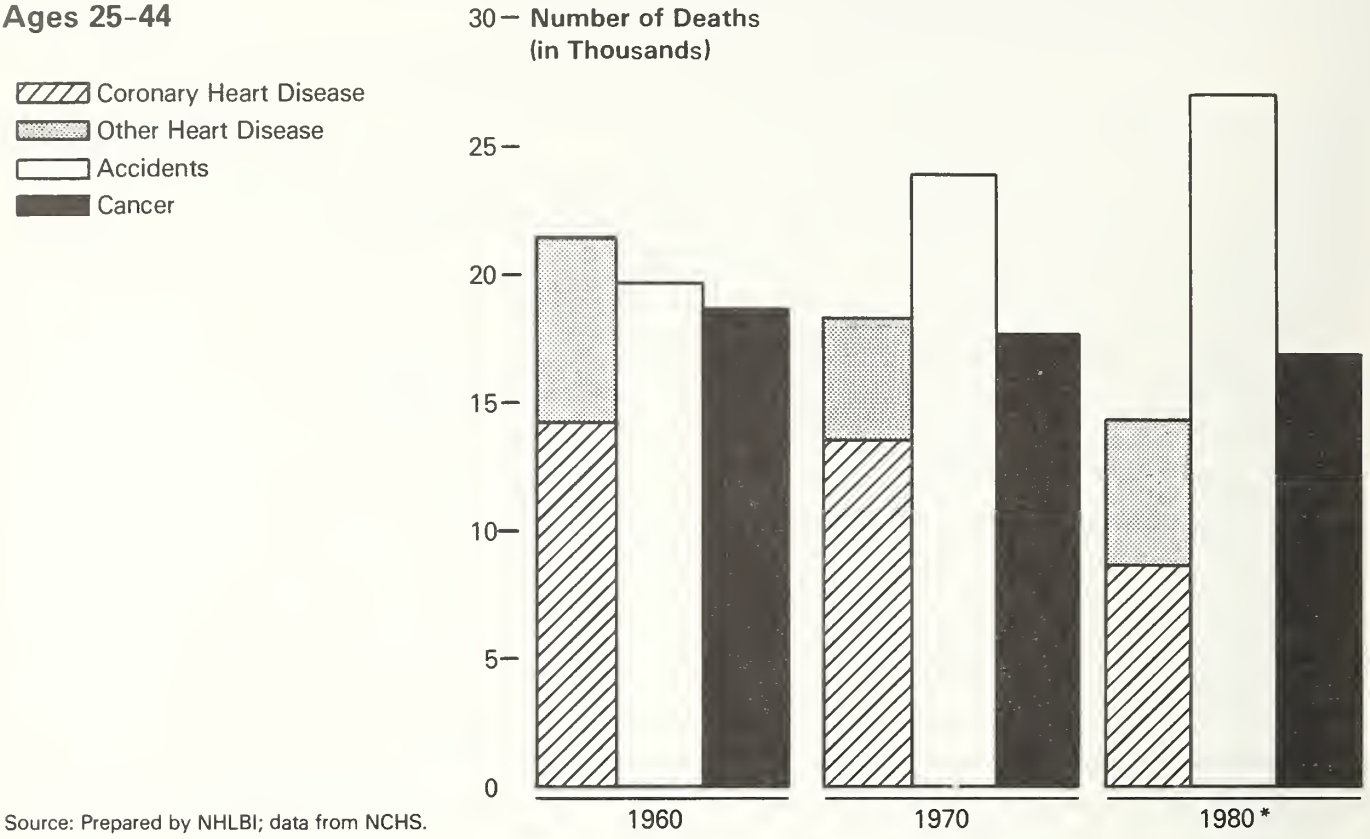
† Increase caused by the shift to the Eighth Revision of the International Classification of Diseases in 1968, a year in which an epidemic of influenza/pneumonia also occurred.

‡ Excluding congenital heart disease.

Source: Prepared by NHLBI; data from NCHS.

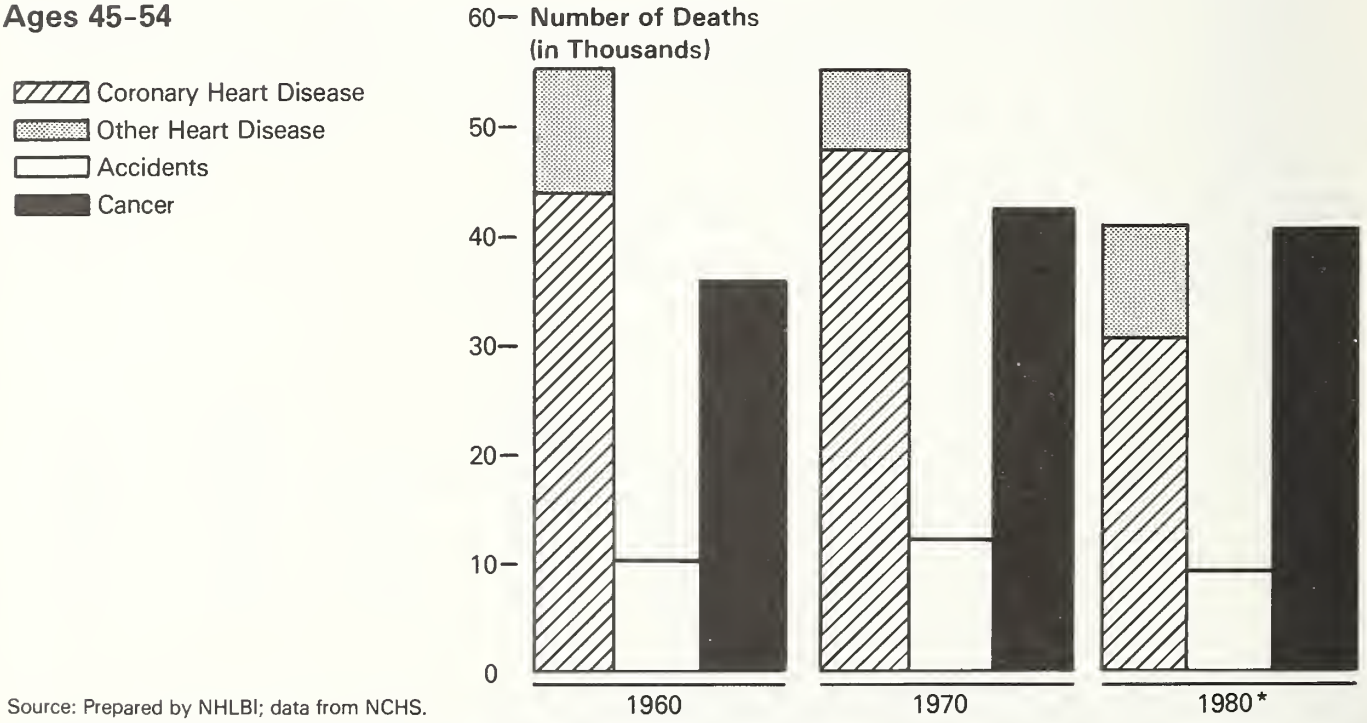
Number of Deaths from the Three Leading Causes

Ages 25-44



Source: Prepared by NHLBI; data from NCHS.

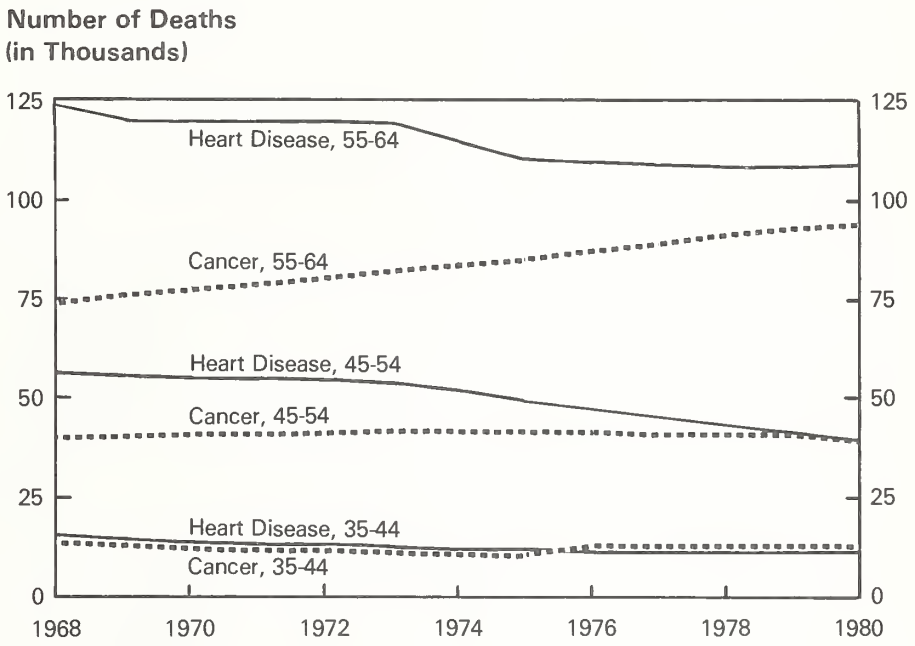
Ages 45-54



Source: Prepared by NHLBI; data from NCHS.

* Provisional and based on the Ninth Revision of the International Classification of Diseases, which assigns fewer deaths to coronary heart disease.

Number of Deaths from Heart Disease and Cancer Among Three Age Groups: U.S., 1968–1980



Deaths, Death Rates, and Percentage Change in Rates for Selected Causes of Death in the United States, 1970–1980

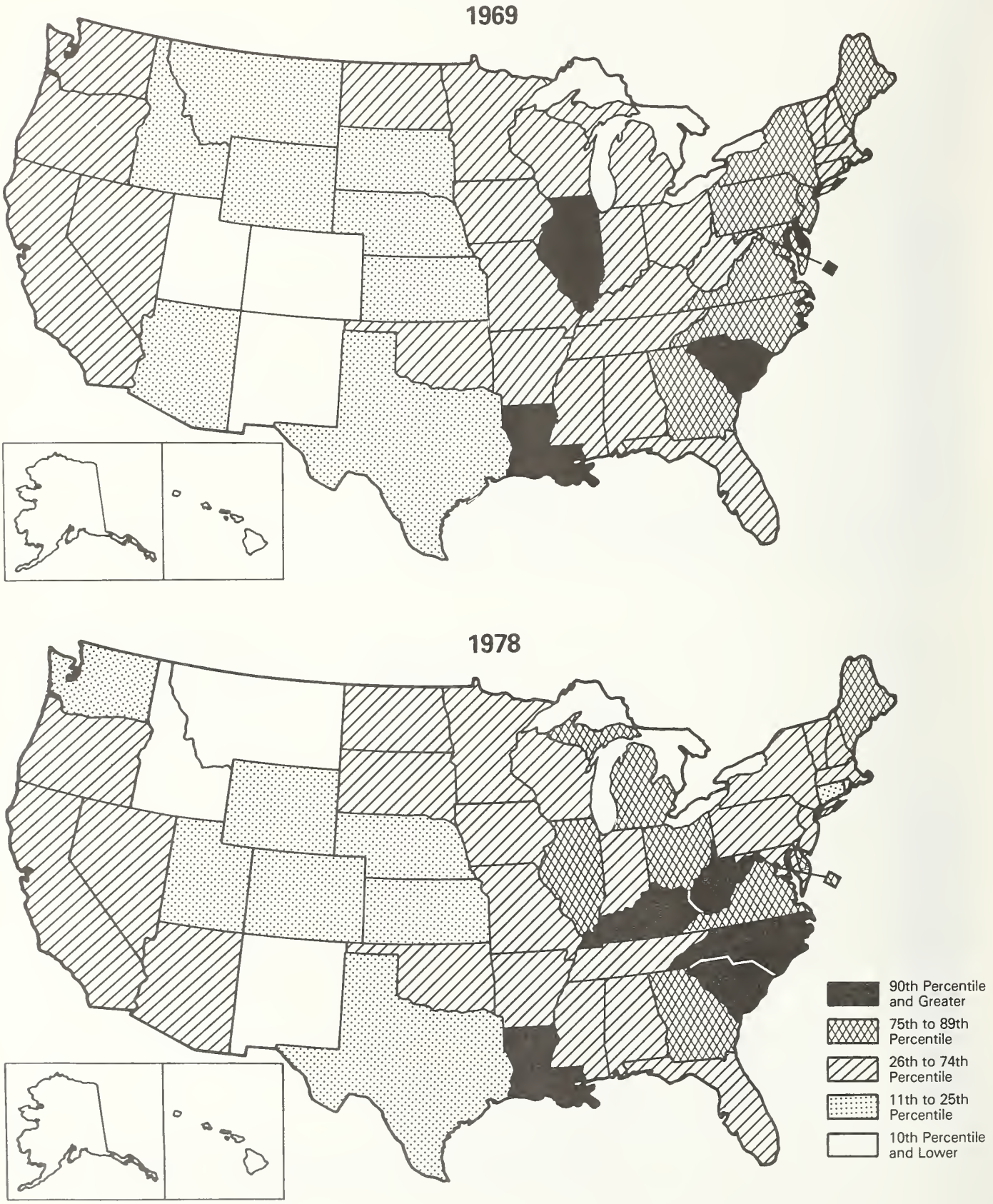
Causes of Death	Rate per 100,000 Population* 1970	1980†	Percent Change 1970–1980
All Causes	714.3	594.1	−16.8
Cardiovascular Diseases	350.0	267.7	−23.5
Coronary Heart Disease	228.1	173.5	−23.9
Stroke	66.3	41.3	−37.7
Hypertensive Disease	7.9	4.4	−44.3
Rheumatic Heart Disease	6.3	4.1	−34.9
All Other CV Disease	41.4	44.4	+ 7.2
All Other Causes	364.3	326.4	−10.4
Cancers - Other Than Lung	103.3	99.0	− 4.2
Lung Cancer	26.6	34.9	+31.2
Accidents, Poisonings, Violence	77.4	69.0	−10.8
Influenza and Pneumonia	22.1	13.6	−38.5
Cirrhosis of the Liver	14.7	12.5	−15.0
Diabetes	14.1	10.1	−28.3
Chronic Obstructive Pulmonary Disease	12.2	16.2	+32.8
All Other	93.9	71.1	−24.3

* Age adjusted to U.S. population, 1940.

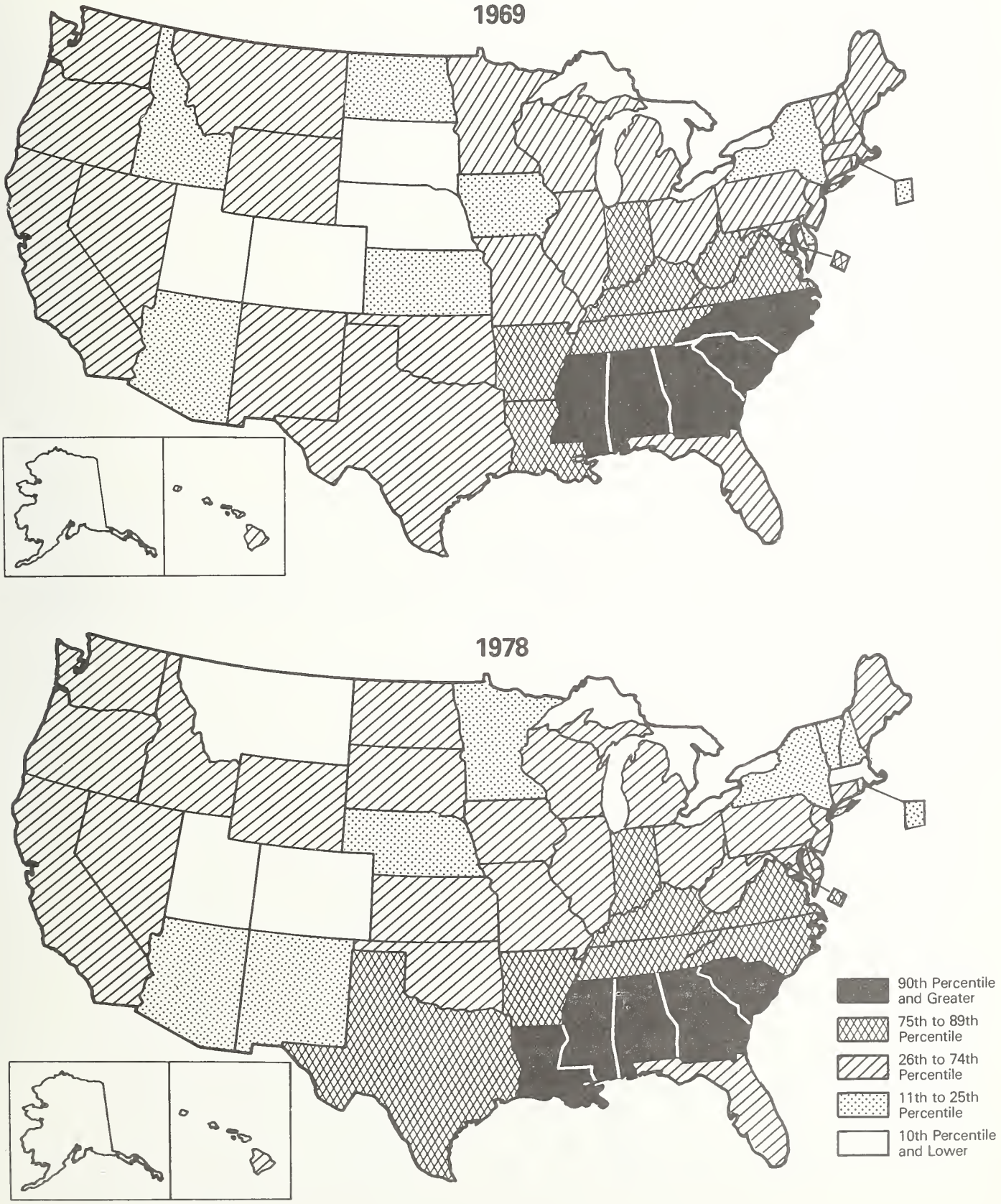
† Provisional and converted to ratio comparable to those of the Eighth Revision of the International Classification of Diseases using crude comparability ratios.

Source: Prepared by NHLBI from data from the National Center for Health Statistics.

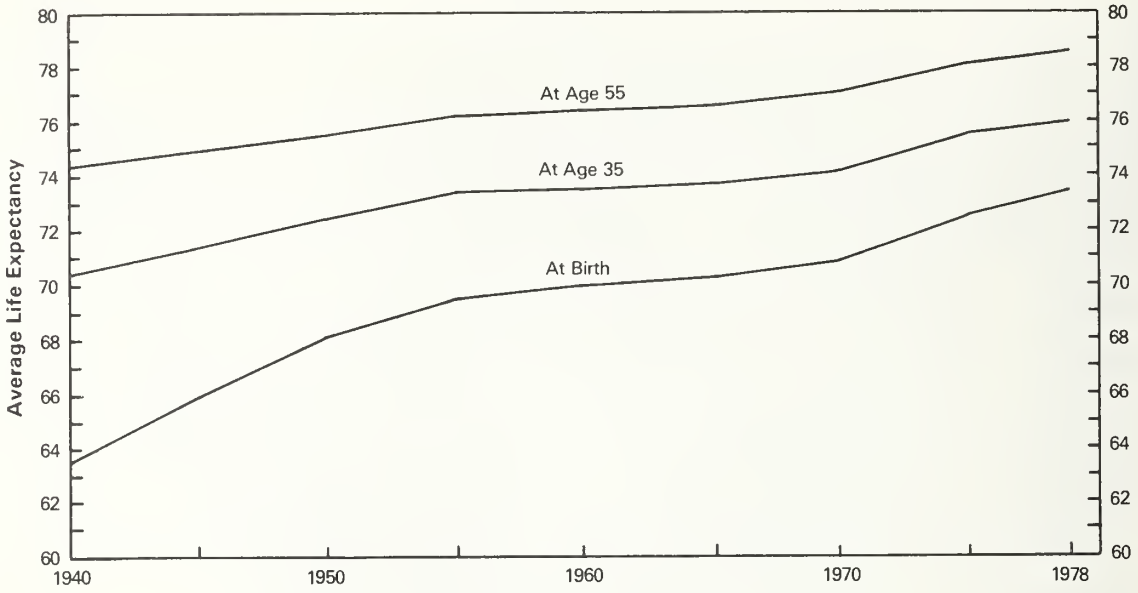
Coronary Heart Disease Mortality in the United States: Total Population Ages 35-74, Age-Adjusted Rates per 100,000



Stroke Mortality in the United States:
Total Population Ages 35-74, Age-Adjusted Rates per 100,000

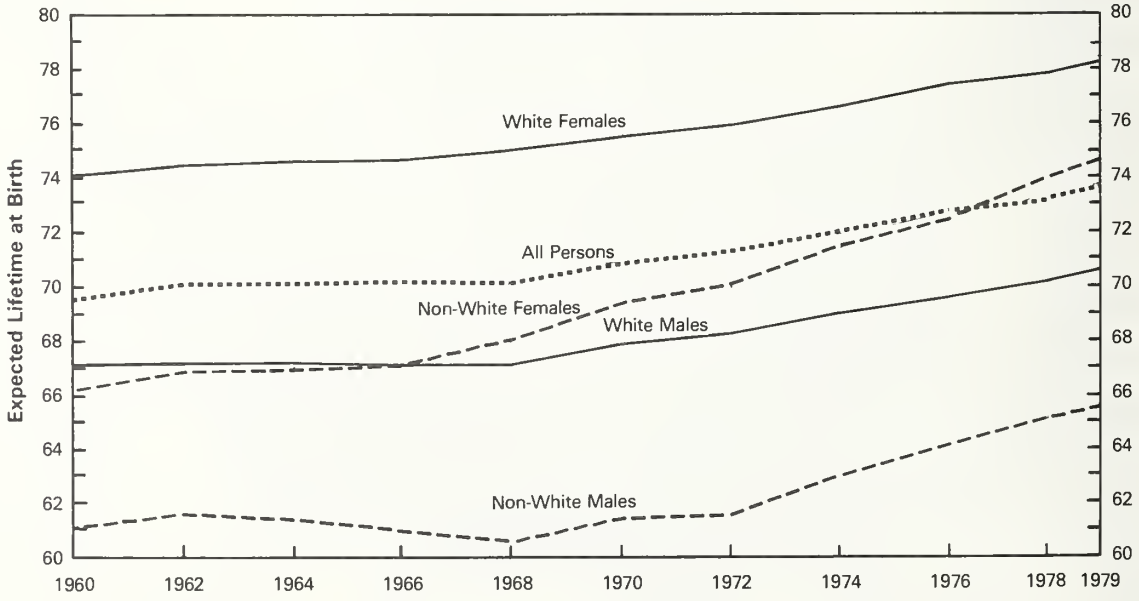


Increase in Life Expectancy at Birth, at Age 35, and at Age 55 for Total Population, United States 1940-1978



Source: Prepared by NHLBI; data from NCHS.

Life Expectancy at Birth, By Sex and Color; United States, 1960 to 1979



Source: Prepared by NHLBI; data from NCHS.

Trend in the Death Rate for Coronary Heart Disease Among Men Ages 35–74 in Selected Countries, 1969 and 1978

Country	Percent Change in Rate	Rate per 100,000 Population (Age-Averaged)	
		1969	1978
United States	−24.8	864.7	650.4
Australia	−23.1	843.7	649.0
Japan	−21.4	126.3	99.2
Israel	−20.0	653.3	522.8†
Canada	−11.3	703.3	624.1*
Norway	− 7.3	583.0	540.6
Belgium	− 4.3	446.1	426.8†
New Zealand	− 3.4	773.4	747.1*
Finland	− 1.8	893.7	878.0†
Italy	− 1.1	313.0	309.6‡
Czechoslovakia	+ 0.4	587.9	590.4‡
Netherlands	+ 3.1	478.7	493.4
Denmark	+ 3.3	566.1	584.6
Scotland	+ 3.3	813.8	840.8
England and Wales	+ 3.5	662.1	685.6
Ireland	+ 5.3	662.2	697.6‡
France	+ 6.0	195.2	207.0†
Austria	+ 7.4	428.3	460.1
West Germany	+ 9.2	427.3	466.6
Switzerland	+10.5	290.4	320.8
Northern Ireland	+10.8	782.4	867.1*
Sweden	+12.1	524.0	587.6
Hungary	+20.6	441.6	532.5
Yugoslavia	+25.1	185.0	227.6*
Bulgaria	+41.4	299.4	423.5*
Romania	+45.6	170.5	248.2
Poland	+71.5	186.5	319.8

* 1977.
† 1976.
‡ 1975.
Source: World Health Organization.

Trend in the Death Rate for Coronary Heart Disease Among Women Ages 35–74 in Selected Countries, 1969 and 1978

Country	Percent Change in Rate	Rate per 100,000 Population (Age-Averaged)	
		1969	1978
United States	−28.9	359.0	255.2
Australia	−26.7	348.9	255.6
Japan	−24.4	63.4	47.9
Israel	−20.3	366.1	291.9†
Canada	−19.6	276.9	222.7*
Norway	−18.0	199.4	163.4
Denmark	−16.3	236.0	197.6
Belgium	−13.3	172.0	149.2†
Italy	−10.8	133.9	119.4‡
Netherlands	− 7.9	171.4	157.8
Finland	− 7.1	286.0	265.7†
Sweden	− 6.3	206.0	193.0
France	− 4.0	70.7	67.9†
Scotland	− 3.8	338.2	351.0†
Czechoslovakia	− 2.7	259.5	252.5‡
Switzerland	− 2.2	100.7	98.5
England and Wales	− 1.6	236.5	240.3
Hungary	− 0.3	231.1	231.9
Ireland	− 0.3	288.3	287.3‡
Austria	− 0.3	172.1	171.5
New Zealand	+ 0.7	300.4	302.4*
Northern Ireland	+ 3.1	323.9	333.8*
West Germany	+ 7.4	141.1	151.5
Yugoslavia	+ 8.4	98.4	106.7*
Bulgaria	+22.0	203.8	248.7*
Romania	+31.9	102.1	134.7
Poland	+48.8	56.8	102.7

* 1977.
† 1976.
‡ 1975.
Source: World Health Organization.

Direct and Indirect Economic Costs of Illness by Disease Category of Diagnosis, United States, 1977

Diagnosis	Amount ($ Billions)				Percentage Distribution			
	Total	Direct Costs*	Indirect Costs		Total	Direct Costs*	Indirect Costs	
			Morbidity†	Mortality‡			Morbidity†	Mortality‡
Diseases of the circulatory system	*69.6*	*23.7*	*8.2*	*37.7*	*21.5*	*16.0*	*15.0*	*31.1*
Diseases of the respiratory system	*28.0*	*11.1*	*12.1*	*4.8*	*8.6*	*7.5*	*22.1*	*4.0*
Diseases of the blood and blood-forming organs	*1.6*	*1.0*	*0.2*	*0.4*	*0.5*	*0.7*	*0.4*	*0.3*
Accidents, poisonings, and violence	48.3	10.2	6.8	31.3	14.9	6.9	12.4	25.8
Diseases of the digestive system	31.7	21.4	4.4	5.9	9.8	14.5	8.0	4.9
Neoplasms	34.2	7.9	2.0	24.3	10.6	5.3	3.6	20.0
Mental disorders	18.0	14.0	2.9	1.1	5.6	9.5	5.3	0.9
Diseases of the nervous system and sense organs	15.5	11.7	1.9	1.9	4.8	7.9	3.5	1.6
Diseases of the musculoskeletal system and connective tissue	14.7	8.1	6.2	0.4	4.5	5.5	11.3	0.3
Diseases of the genitourinary system	11.5	8.3	2.1	1.1	3.5	5.6	3.8	0.9
Endocrine, nutritional, and metabolic diseases	9.0	4.9	1.7	2.4	2.8	3.3	3.1	2.0
Infective and parasitic diseases	6.3	3.0	1.9	1.4	1.9	2.0	3.5	1.2
Pregnancy, childbirth, and the puerperium	5.6	5.1	0.4	0.1	1.7	3.4	0.7	0.1
Diseases of the skin and subcutaneous tissue	3.9	3.1	0.7	0.1	1.2	2.1	1.3	0.1
Congenital anomalies	2.6	0.6	—	2.0	0.8	0.4	—	1.6
Other	23.5	13.9	3.3	6.3	7.3	9.4	6.0	5.2
Total	$324.0	$148.0	$54.7	$121.3	100.0%	100.0%	100.0%	100.0%

* Includes only personal health care expenditures allocated to diagnoses (87 percent of total direct health care expenditures). Estimated by NHLBI based on the distribution of direct costs by diagnosis in the estimates for 1975 published by the Public Services Laboratory, Georgetown University.

† Estimated by the National Center for Health Statistics (unpublished).

‡ Based on a 6 percent discount rate.

6. NHLBI Processes of Planning, Implementation, Management, and Evaluation

Planning

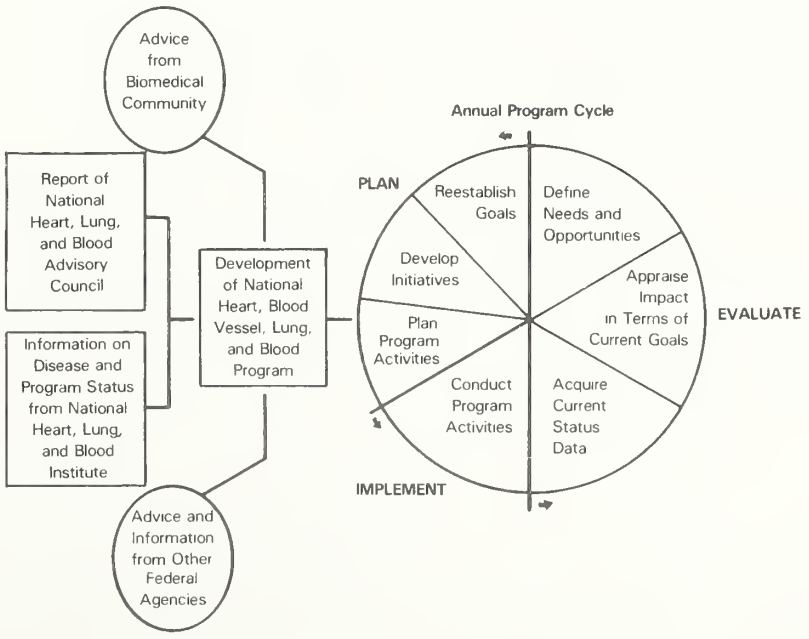
The Institute is currently undertaking an intensive review of its past priorities and achievements to develop a revised 10-year program plan. During this process, the goals and activities of NHLBI may undergo some revisions or expansions. These changes will be reported in the Ten-Year Review and Update of the National Heart, Blood Vessel, Lung, Blood Disease, and Blood Resources Program Plan, to be completed in 1983.

The initial five-year plan was developed through the combined efforts of NHLBI; the National Heart, Lung, and Blood Advisory Council; four national panels of consultants on heart and blood vessel diseases, lung diseases, blood diseases, and blood resources; the Interagency Technical Committee, comprising representatives of Federal agencies; and 28 task groups. Additional assistance was provided by a number of nonprofit voluntary agencies, public interest groups, and the scientific community.

This collaboration promoted productive interaction and joint planning among those at the forefront of the fields that make up the scientific constituency of the Institute, those responsible for carrying out the National Program, and those ultimate "consumers" of the results of the Institute's programs. The resulting Plan forms the basis for the Institute's many programs and for its annual cycle of program planning, evaluation, and coordination (Figure 1).

The nature of planning, as it is carried out by the Institute, is a continuous process encompassing activities ranging from the development of policies and strategies at the national level through the setting of priorities among competing programs to the establishment of budgets for single programs or projects. Planning

Figure 1: Origin of the National Program and the Annual Program Cycle


Formulation of National Program — 1972
Advice from Biomedical Community
Report of National Heart, Lung, and Blood Advisory Council
Information on Disease and Program Status from National Heart, Lung, and Blood Institute
Development of National Heart, Blood Vessel, Lung, and Blood Program
Advice and Information from Other Federal Agencies
Annual Program Cycle
PLAN
Reestablish Goals
Define Needs and Opportunities
Develop Initiatives
Appraise Impact in Terms of Current Goals
EVALUATE
Plan Program Activities
Conduct Program Activities
Acquire Current Status Data
IMPLEMENT

approaches vary. Some are highly specific, controlled techniques; others are relatively unstructured approaches with the flexibility necessary to promote research leading to important biomedical innovations.

The NHLBI planning process is a yearly cycle characterized by a continuous flow of information from the public, the biomedical research community, the medical community, other Federal agencies, and non-Federal organizations. The Institute is responsible for organizing this information and using it to develop meritorious programs that are implemented within existing resource constraints.

As part of this planning process, a series of reports and formal plans are published each year. These documents, which serve as milestones in the annual planning process, are prepared by NHLBI staff members to structure and coordinate input from the NHLBI Advisory Council and from NHLBI committees and consultants. The documents serve as resource materials, implementation plans for program activities, and state-of-the-art assessments. They define program component interrelationships, inform Congress and the Administration of needs for accomplishing the five-year plan, and inform the scientific community about the Institute's accomplishments. However, the planning process—not the documents—is key to the orderly development and implementation of the Institute's programs. Coordinated and timely involvement of those responsible for guiding NHLBI ensures that the resultant plans and reports are dynamic and meaningful.

NHLBI DIVISIONAL ADVISORY COMMITTEES ASSISTING IN PROGRAM REASSESSMENT

CARDIOVASCULAR
- Arteriosclerosis, Hypertension, and Lipid Metabolism Advisory Committee
- Cardiology Advisory Committee
- Clinical Applications and Prevention Advisory Committee

PULMONARY
- Pulmonary Diseases Advisory Committee

BLOOD
- Blood Diseases and Resources Advisory Committee
- Sickle Cell Disease Advisory Committee

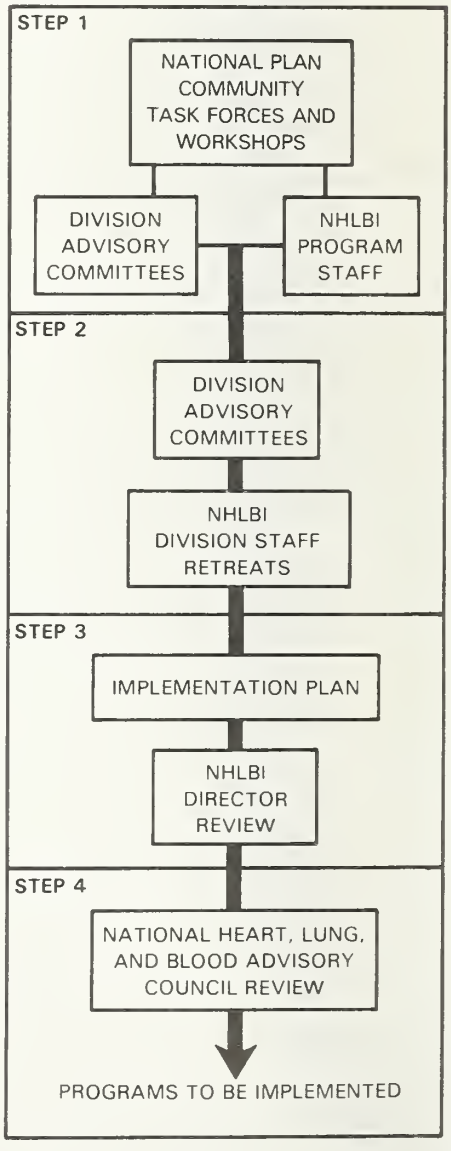
The NHLBI planning process consists of four distinct but overlapping steps leading to the implementation of new programs or to the expansion, modification, or discontinuation of existing programs (Figure 2).

Step 1. The first step in the process—review, assessment, and consensus—is centered on a series of intensive interactions among the NHLBI program staff, the Institute's scientific advisory committees, and members of the general scientific community. (Chartered NHLBI advisory committees are listed in the table below). Through an interactive process involving workshops, seminars, task forces, and technical working groups, the goals, objectives, and progress of the National Program Plan are reviewed against the state of the science as reflected in the published scientific literature and the collective knowledge of the participating scientific experts. During this process, existing research strategies are examined and new ones developed. The major tangible product of this first step in the planning process consists of preliminary lists of recommended program initiatives for the ensuing program years.

Step 2. The second step in the process—setting priorities—is accomplished jointly by the program staff of each of the Institute's categorical divisions and the appropriate advisory committee. During this step, new initiatives are ranked according to the goals and objectives of the National Plan and are rated and ranked by groups of experts in their respective program areas. Based on the advice and recommendations of these experts, NHLBI staff members further develop the more promising initiatives in light of the progress, results, and potential impact of ongoing programs; fiscal and schedule constraints; and program objectives. The surviving initiatives are further reviewed and approved by the respective advisory committees. The tangible product of this step is a list of categorized and prioritized initiatives.

Step 3. The third step in the planning process—developing and reviewing the implementation plan—is conducted within the Institute. Each categorical division prepares an implementation plan outlining each new initiative in terms of its scientific

Figure 2: The NHLBI Planning Process



and programmatic rationale and justification, funding mechanism, and management and fiscal plan. The Institute Director's office reviews and analyzes each implementation plan and adjusts it to reflect total available resources, congressional mandates, and intra-Institute, inter-Institute, and interagency programmatic responsibilities. The adjustments are reviewed and negotiated with each categorical division. The result of this step is the NHLBI Implementation Plan and Program Budget.

Step 4. The fourth step in the process—National Heart, Lung, and Blood Advisory Council review—provides for direct Council participation in the planning process. Each new program initiative or major program expansion is presented to, and reviewed by, the entire Advisory Council during open session. Council recommendation is solicited and obtained on each initiative, and Council advice on special areas for emphasis is received. After the Advisory Council's review, the initiatives and other recommendations resulting from this intense, thorough, and disciplined planning process are ready for implementation.

Program Implementation

NHLBI is structured and organized to achieve the objectives and implement the programs contained in its authorizing legislation. However, it is a task of considerable magnitude to ensure the continuing responsiveness of the Institute to evolving national needs, to corresponding changes in congressional mandates, and to the state of the science. Furthermore, since mandates normally are broadly stated and have widespread implications, programs developed to fulfill mandates vary in scope and direction. Some may affect a large segment of the population, while others affect a specific fraction of the population that needs a solution to a particular problem.

Thus, program implementation is a complex process requiring the availability and optimum utilization of scientific knowledge, human and financial resources, and facilities. The rapidity with which a specific mandate or approved initiative is translated into an operational project depends to a large degree on the availability of the resources required. Implementation of the Institute's program is only possible through considerable planning, coordination of required resources, sound program management, and the interest and collaboration of dedicated experts in the scientific community.

Evaluation

The Institute's responsibility does not end with program planning and implementation. There is the continuing need to evaluate the National Program against specific goals and objectives outlined in the initial Five-Year Plan and to assess the state of the science in areas covered by the NHLBI mission, identify needs, and capitalize on opportunities. These requirements are fulfilled by a diverse set of activities combined into a disciplined strategy. The Institute's evaluation activities include:

- Collection and analysis of data on small projects and large programs.
- Acquisition of expert scientific judgment of ongoing programs.
- Assessment of the resultant or potential effectiveness of concluded programs.
- Complete analysis of stated National Program goals, planned actions, and scheduled activities.

NHLBI Mechanisms of Management*

Support Mechanism	Initiation	Primary Review	Secondary Review	Ongoing Management and Evaluation	
Research Grants (R01) and New Investigator Research Grants (R23)	Individual Investigator	DRG Study Section	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Program Project Grants (P01)	Individual Investigator	Research Review Committees A and B, DEA, NHLBI	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
SCOR's (P50), National R&D Centers (P60), and Special Grant Programs (RFA-R01)	NHLBI Solicitation (RFA)	Special Review Committee, DEA of NHLBI, or DRG	National Heart, Lung, and Blood Advisory Council	NHLBI Program Office and Divisional Advisory Committee	Progress Reports, Annual Reports, Site Visits
Career Programs					
Special Emphasis Research Career Awards (K01)	NHLBI Solicitation (RFA)	Special Review Committee, DEA, NHLBI	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Research Career Development Awards (K04)	Individual Investigator	DRG Study Section	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Preventive Cardiology Academic Awards and Pulmonary Academic Awards (K07)	NHLBI Solicitation (RFA)	Special Review Committee, DEA, NHLBI	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Clinical Investigator Awards (K08)	NHLBI Solicitation (RFA)	Special Review Committee, DEA, NHLBI	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Training Programs					
Institutional Research Service Awards (T32)	Individual Investigator	Research Manpower Committee, DEA, NHLBI	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Minority Hypertension Research Development Awards (T35)	NHLBI Solicitation (RFA)	Research Manpower Committee, DEA, NHLBI	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Short-Term Training: Students in Health and Professional Schools (T35)	Individual Investigator	Special Study Section, DRG	National Heart, Lung, and Blood Advisory Council	NHLBI Project Officer	Annual Report of Progress
Fellowships: Individual Research Service Postdoctoral Awards (F32) and Senior Fellowship Awards (F33)	Individual Investigator	DRG Study Section	NHLBI Division Research Training and Development Committee	NHLBI Project Officer	Annual Report of Progress
R&D Contracts (N01)	NHLBI Request for Proposal (RFP)	Special Technical Review Groups, DEA, NHLBI	Program Office and Divisional Executive Staff Review Board	NHLBI Program Office Divisional Advisory Committee	Quarterly Reports, Site Visits, Annual Reports

* For further information about any of the above support mechanisms, contact the Office of the Director, Division of Extramural Affairs, National Heart, Lung, and Blood Institute, Room 7A17, Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20205.

7. Council, Committees, and Review

National Heart, Lung, and Blood Advisory Council

STRUCTURE

Chairman: Director, National Heart, Lung, and Blood Institute

Membership

Eighteen members appointed by the Secretary, Department of Health and Human Services:

- Eleven appointed members are leading medical or scientific authorities.
- Two are selected from persons enrolled in medical residency programs.
- Five are members of the general public who are leaders in fundamental or medical sciences, or in public affairs.

Members are appointed for overlapping terms of four years.

Ex-Officio Members:

- Secretary, Department of Health and Human Services
- Director, National Institutes of Health
- Director, Office of Science and Technology Policy
- Chief Medical Officer, Veterans Administration
- Medical Officer Designee, Department of Defense

FUNCTIONS

Reviews applications for grants-in-aid relating to research projects in the field of heart, blood vessel, lung, and blood diseases and in the field of blood resources, and recommends to the Director, NIH, the approval of projects that merit support.

Advises the Secretary, DHHS, and the Directors of NIH and NHLBI on matters relating to the causes, prevention, and methods of diagnosis and treatment of these diseases and resources.

Collects information as to studies being carried on in the U.S. and abroad relating to these diseases and resources, and makes such information available.

Makes recommendations to the Director, NIH, regarding the acceptance of conditional gifts pursuant to Section 501 of the PHS Act.

Counsels and assists the Director, NHLBI, regarding the National Heart, Blood Vessel, Lung, and Blood Disease Program, and submits a yearly report to the President and to the Congress on the progress of the program objectives.

Recommends areas of research to be supported by the awarding of contracts. Also recommends the percentage of the Institute's budget that should be expended for such contracts.

MEETINGS

Meetings are convened by the Chairman, not fewer than four times a year. The Chairman approves the agenda.

MEMBERSHIP*

Dr. Peter L. Frommer *(Chairman)*
Acting Director
National Heart, Lung, and Blood Institute
National Institutes of Health
Bethesda, Maryland 20205

Mr. Arthur Ashe (1984)
Washington, D.C. 20006

Dr. J. David Bristow (1982)
Professor of Medicine
Division of Cardiology
University of Oregon Health Sciences Center
Portland, Oregon 97201

Dr. John E. Connolly (1985)
Professor and Chairman
Department of Surgery
University of California School of Medicine
Irvine, California 92717

Dr. Dale H. Cowan (1985)
Director
Division of Hematology and Oncology
St. Luke's Hospital of the United Methodist Church
Cleveland, Ohio 44104

Dr. Celia J. Flinn (1984)
Division of Pediatric Cardiology
Department of Pediatrics
School of Medicine
University of Miami
Miami, Florida 33101

Dr. Peter C. Gazes (1983)
Director, Cardiovascular Division
Department of Medicine
Medical University of South Carolina College of Medicine
Charleston, South Carolina 29403

Dr. Roberta M. Goldring (1984)
Associate Professor of Medicine
New York University School of Medicine
New York, New York 10016

Mr. Oscar Gonzales (1982)
Vice President
First Interstate Bank of Arizona
Tucson, Arizona 85702

Dr. Maryl R. Johnson (1983)
Department of Internal Medicine
Hospitals and Clinics
University of Iowa
Iowa City, Iowa 52242

Dr. Howard E. Morgan (1983)
Evan Pugh Professor of Physiology
The Pennsylvania State University College of Medicine
Hershey, Pennsylvania 17033

Ms. Louise M. Nett, R.N. (1982)
Respiratory Care Coordinator
Pulmonary Division
University of Colorado Medical Center
Denver, Colorado 80262

Dr. Harold R. Roberts (1984)
Professor of Medicine
University of North Carolina School of Medicine
Chapel Hill, North Carolina 27541

Dr. John Ross, Jr. (1984)
Director, Cardiovascular Division
School of Medicine
University of California, San Diego
La Jolla, California 92093

Dr. Joseph C. Ross (1985)
Professor of Medicine
Vanderbilt University School of Medicine
Nashville, Tennessee 37232

Ms. Jane S. Scott (1985)
Sales Coordinator
Randon Knitwear Inc.
930 Oakley Street
Graham, North Carolina 27253

Dr. Jeremiah Stamler (1982)
Professor and Chairman
Department of Community Health and Preventive Medicine
Northwestern University
Chicago, Illinois 60611

Dr. Douglas M. Surgenor (1983)
President
Northeast Regional Red Cross Blood Program
Needham, Massachusetts 02194

Mrs. Doris Tulcin (1983)
National President
Cystic Fibrosis Foundation
Rockville, Maryland 20852

Dr. Jerome G. Green *(Executive Secretary)*
Director
Division of Extramural Affairs
National Heart, Lung, and Blood Institute
National Institutes of Health
Bethesda, Maryland 20205

Ex-Officio

Dr. William P. Baker
Head, Cardiovascular Branch
Department of Medicine
National Naval Medical Center
Bethesda, Maryland 20814

Dr. Richard Levine
Associate Chief of Staff for Research and Development
Veterans Administration
Washington, D.C., Medical Center
Washington, D.C. 20422

Dr. Thomas E. Malone
Acting Director
National Institutes of Health
Bethesda, Maryland 20205

Dr. Denis Prager
Assistant Director
Office of Science and Technology Policy
Executive Office of the President
Washington, D.C. 20500

* Current as of April 15, 1982.

Public Advisory and Review Groups to the NHLBI Divisions

Division of Heart and Vascular Diseases

ARTERIOSCLEROSIS, HYPERTENSION, AND LIPID METABOLISM ADVISORY COMMITTEE

Chairperson:
Dr. Genell L. Knatterud
University of Maryland, Baltimore

Executive Secretary:
Dr. Gardner C. McMillan
Associate Director
Etiology Subdivision, DHVD
NHLBI, National Institutes of Health
Bethesda, Maryland 20205
(301) 496-1613

Advises the Secretary, DHHS, and the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on the planning, execution, and evaluation of the Institute's extramural programs, including those relating to grants, contracts, specialized centers of research, and research and demonstration centers in the general areas of lipid metabolism and the etiology and pathogenesis of arteriosclerosis and of hypertension. Advises and assists in scientific design and review of current programs, particularly with regard to content, relevance to the appropriate portions of the Institute's National Heart, Blood Vessel, Lung, and Blood Program, and cost. Also identifies and evaluates future research needs and opportunities and programs in these areas.

Membership*

Dr. Rosemary D. Bevan (1982)
University of California, Los Angeles

Dr. Dewitt S. Goodman (1982)
Columbia University

Dr. Charles H. Hennekens (1983)
Harvard University

Dr. David Kritchevsky (1983)
Wistar Institute of Anatomy and Biology

Dr. Robert W. Mahley (1984)
J. David Gladstone Foundation

Dr. Connie S. McCaa (1984)
University of Mississippi

Dr. Ronald J. Prineas (1983)
University of Minnesota, Minneapolis-St. Paul

Dr. Virgie G. Shore (1984)
Lawrence Livermore National Laboratory

Dr. Charles F. Sing (1984)
University of Michigan, Ann Arbor

Dr. Alicia D. Terragno (1982)
New York Medical College

Dr. Reginald C. Tsang (1983)
University of Cincinnati

Dr. Joseph Wiener (1982)
Wayne State University

CARDIOLOGY ADVISORY COMMITTEE

Chairman:
Dr. William S. Pierce
Pennsylvania State University, Hershey Medical Center

Executive Secretary:
Dr. Barbara Packard
Director
Division of Heart and Vascular Diseases, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-2553

Advises the Secretary, DHHS, and the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on planning, execution, and evaluation of the Institute's extramural programs, including those related to grants, contracts, and specialized centers of research in the general area of cardiology, including cardiac disease, cardiovascular function, and relevant technological developments. Advises and assists in scientific design and review of current programs.

* Current as of April 15, 1982

Membership*

Dr. Robert W. Barnes (1984)
Medical College of Virginia

Dr. Stanley A. Briller (1983)
Allegheny General Hospital

Dr. L. Maximilian Buja (1984)
University of Texas
Health Science Center

Dr. Bernardine H. Bulkley (1982)
Johns Hopkins University

Dr. Charles K. Francis, Jr. (1982)
Yale University

Dr. Lael C. Gatewood (1984)
University of Minnesota,
Minneapolis-St. Paul

Dr. Joak Han (1985)
Union University

Dr. William B. Hood, Jr. (1982)
Boston University

Dr. Josephine B. Isabel-Jones (1983)
University of California, Los Angeles

Dr. Benedict R. Lucchesi (1985)
University of Michigan, Ann Arbor

Dr. Arthur J. Moss (1983)
University of Rochester

Dr. Bramah N. Singh (1983)
Wadsworth Veterans Administration
Medical Center

Dr. Andrew G. Wallace (1984)
Duke University

CLINICAL APPLICATIONS AND PREVENTION ADVISORY COMMITTEE

Chairman:
Dr. Donovan J. Thompson
University of Washington

Executive Secretary:
Dr. William T. Friedewald
Associate Director for Clinical
Applications and Prevention,
DHVD, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-2533

Advises the Secretary, DHHS, and the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on policy matters relating to the epidemiological and biometrics research programs, clinical trials, and preventive cardiology programs, and appraises ongoing studies in these areas. Evaluates ongoing contracts, grants, and reimbursable agreements for scientific content and program relevance. Identifies research opportunities and needs for prevention and application of knowledge for the control of heart and vascular disease.

Membership*

Dr. Margaret J. Albrink (1982)
West Virginia University

Dr. John F. Mueller (1984)
St. Luke's Hospital

Dr. Jorge C. Rios (1984)
George Washington University

Dr. Judith Rodin (1984)
Yale University

Dr. Elijah Saunders (1982)
Provident Hospital

Dr. Alvin P. Shapiro (1982)
University of Pittsburgh

Dr. O. Dale Williams (1984)
University of North Carolina,
Chapel Hill

Division of Lung Diseases

PULMONARY DISEASES ADVISORY COMMITTEE

Chairman:
Dr. Edward H. Bergofsky
State University of New York,
Stony Brook

Executive Secretary:
Dr. Suzanne S. Hurd
Acting Director
Division of Lung Diseases, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-7208

Advises the Secretary, DHHS, and the Directors, NIH and the Division of Lung Diseases, NHLBI, on aims, progress, and productivity of goal-oriented programs of the Institute, such as Pulmonary Specialized Centers of Research, Research and Demonstration Centers, and research contracts. Identifies research opportunities and evaluates current future program needs in the pulmonary disease area.

* Current as of April 15, 1982.

Membership*

Dr. Sonia A. Buist (1985)
University of Oregon

Dr. Edwin B. Fisher, Jr. (1984)
Washington University

Dr. Alfred P. Fishman (1982)
University of Pennsylvania

Dr. Marlys H. Gee (1985)
Thomas Jefferson University

Dr. Margit Hamosh (1984)
Georgetown University

Dr. Rejane M. Harvey (1982)
Columbia University

Dr. Edward E. Mays (1983)
Oakland, California

Dr. Roger Mendez (1982)
University of New Mexico,
Albuquerque

Dr. Arnold S. Monto (1983)
University of Michigan, Ann Arbor

Dr. Jay A. Nadel (1985)
University of California,
San Francisco

Dr. Solbert Permutt (1983)
Baltimore City Hospital

Dr. Charles E. Reed (1983)
Mayo Medical School

Dr. Herbert Y. Reynolds (1982)
Yale University

Dr. Gordon L. Snider (1984)
Boston Veterans Administration
Medical Center

Dr. Hans Weill (1985)
Tulane University

Division of Blood Diseases and Resources

BLOOD DISEASES AND RESOURCES ADVISORY COMMITTEE

Chairman:
Dr. Samuel I. Rapaport
University of California,
San Diego

Executive Secretary:
Dr. Fann Harding
Special Assistant to the Director,
Division of Blood Diseases
and Resources, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-1817

Advises the Secretary, DHHS, and the Director, NIH, on long-range goals; reviews program proposals; identifies research opportunities; and makes recommendations to the Director, Division of Blood Diseases and Resources, NHLBI, regarding plans for program development and implementation. Assesses programs and evaluates ongoing programs in relation to goals.

Membership*

Dr. Louis M. Aledort (1985)
Mount Sinai School of Medicine

Dr. Harold S. Ballard (1982)
Manhattan Veterans Administration
Hospital

Dr. Robert P. Geyer (1983)
Harvard University

Dr. Robert C. Hartman (1984)
University of South Florida

Dr. John C. Hoak (1985)
University of Iowa

Dr. Lorraine M. Kraus (1983)
University of Tennessee
Center for the Health Sciences

Dr. Chang L. Lee (1983)
Mount Sinai Hospital Medical Center

Dr. Doris Menache-Aronson (1984)
American Red Cross

Dr. Stephen B. Shohet (1985)
University of California,
San Francisco

Dr. Sherril J. Slichter (1984)
Puget Sound Blood Center

Dr. George Stamatoyannopoulos
(1982)
University of Washington

Dr. Wolf Szmuness (1983)
Lindsley F. Kimball Research
Institute

Dr. Irma O. V. Szymanski (1982)
University of Massachusetts

Dr. Frank E. Trobaugh (1984)
Rush-Presbyterian-St. Luke's
Medical Center

Dr. James G. White (1982)
University of Minnesota,
Minneapolis-St. Paul

Dr. Carolyn Whitsett (1985)
Emory University

* Current as of April 15, 1982.

SICKLE CELL DISEASE ADVISORY COMMITTEE

Chairman:
Dr. Maurice F. Rabb
University of Illinois

Executive Secretary:
Dr. Clarice Reid
Chief, Sickle Cell Disease Branch, DBDR, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-6931

Advises the Secretary, DHHS, or his designee on the sickle cell disease program and on suggested priorities within that program. Also makes recommendations concerning the planning, execution, and evaluation of all aspects of the program.

Membership*

Dr. Sidney J. Barthelemy (1982)
Xavier University, New Orleans

Dr. Shirley A. Brown (1982)
Charles A. Drew Postgraduate Medical School

Dr. Wallace N. Jensen (1983)
University of Miami

Dr. Alfred P. Kraus (1984)
University of Tennessee Center for Health Sciences

Dr. Naomi L. Luban (1984)
Children's Hospital National Medical Center

Dr. David Satcher (1984)
Morehouse College

Dr. Marian A. Secundy (1983)
Howard University

Dr. Elizabeth R. Simons (1984)
Boston University

Ex-Officio

Dr. Joseph D. Bloom
National Naval Medical Center

Dr. Bruce L. Evatt
Centers for Disease Control

Dr. Thomas E. Malone
National Institutes of Health

Dr. Audrey F. Manley
Health Services Administration

Dr. Leo M. Meyer
Veterans Administration Extended Care Center

Division of Extramural Affairs

CLINICAL TRIALS REVIEW COMMITTEE

Chairperson:
Dr. Millicent W. Higgins
University of Michigan, Ann Arbor

Executive Secretary:
Dr. Fred P. Heydrick
Review Branch, DEA, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-7363

Provides technical advice to the Directors, NIH and NHLBI, and to the National Heart, Lung, and Blood Advisory Council, including initial review of applications for the support of studies to evaluate preventive or therapeutic measures in blood, cardiovascular, or lung diseases, particularly through cooperative studies or controlled clinical trials. Provides scientific merit review for such studies that seek grant or contract support from NHLBI.

Membership*

Dr. Lawrence S. Cohen (1985)
Yale University

Dr. Sandra A. Daugherty (1983)
University of Nevada

Dr. Marcus O. Kjelsberg (1983)
University of Minnesota, Minneapolis-St. Paul

Dr. Paul Meier (1982)
University of Chicago

Dr. Gerald E. Thomson (1984)
Columbia University

* Current as of April 15, 1982.

HEART, LUNG, AND BLOOD RESEARCH REVIEW COMMITTEE A

Chairman:
Dr. C. Kern Wildenthal
University of Texas

Executive Secretary:
Dr. Peter M. Spooner
Review Branch, DEA, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-7265

Provides technical advice to the National Heart, Lung, and Blood Advisory Council and to the Director, NHLBI, in areas relating to the fundamental processes and diseases of the heart and lungs, reviews program project grant applications, other grants-in-aid, and contract proposals for the support of programs of multidisciplinary basic and clinical research.

Membership*

Dr. Amir Askari (1984)
Medical College of Ohio

Dr. James B. Bassingthwaighte (1983)
University of Washington

Dr. Joseph D. Brain (1984)
Harvard University

Dr. Kenneth L. Brigham (1985)
Vanderbilt University

Dr. Margaret C. Conrad (1985)
Eastern Virginia Medical School

Dr. Betty C. Corya (1984)
Indiana University

Dr. Paul A. Ebert (1982)
University of California, San Francisco

Dr. Leon E. Farhi (1982)
State University of New York, Buffalo

Dr. Joseph C. Greenfield (1984)
Duke University

Dr. David J. Hartshorne (1985)
University of Arizona

Dr. Julian L. Haywood (1982)
University of Southern California

Dr. Arnold M. Katz (1984)
University of Connecticut Health Center

Dr. Betty M. Twarog (1982)
State University of New York, Stony Brook

Dr. Peter A. Ward (1983)
University of Michigan, Ann Arbor

Dr. Myron L. Weisfeldt (1983)
Johns Hopkins University

HEART, LUNG, AND BLOOD RESEARCH REVIEW COMMITTEE B

Chairman:
Dr. Richard W. St. Clair
Wake Forest University

Executive Secretary:
Dr. Louis M. Ouellette
Review Branch, DEA, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-7915

Provides technical advice to the National Heart, Lung, and Blood Advisory Council and to the Director, NHLBI, in areas relating to the fundamental processes and diseases of blood vessels and blood and to blood banking and resources, reviews program project grant applications, other grants-in-aid, and contract proposals for the support of programs of multidisciplinary basic and clinical research.

Membership*

Dr. David F. Bohr (1984)
University of Michigan, Ann Arbor

Dr. Michael J. Brody (1983)
University of Iowa

Dr. Aram V. Chobanian (1982)
Boston University

Dr. Barry S. Coller (1984)
State University of New York, Stony Brook

Dr. Katherine M. Detre (1982)
University of Pittsburgh

Dr. Barbara C. Furie (1984)
Tufts University

Dr. Suk Ki Hong (1983)
State University of New York, Buffalo

Dr. Craig M. Jackson (1982)
Washington University

Dr. Kyu T. Lee (1983)
Union University

Dr. Victor J. Marder (1983)
University of Rochester

Dr. Alexander V. Nichols (1984)
University of California, Berkeley

Dr. Linda L. Slakey (1982)
University of Massachusetts, Amherst

* Current as of April 15, 1982

RESEARCH MANPOWER REVIEW COMMITTEE

Chairperson:
Dr. Karen R. Hitchcock
Tufts University

Executive Secretary:
Dr. Carol H. Letendre
Review Branch, DEA, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-7363

Provides technical advice to the Director, NIH, the Director, NHLBI, and to the National Heart, Lung, and Blood Advisory Council, including initial review of projects for the support of research manpower training for the Pulmonary Academic Award Program, the Preventive Cardiology Academic Award Program, the Medical School Pulmonary Faculty Training Program, the Minority Hypertension Research Development Summer Program, and National Research Service Awards for Institutional Grants, and for conferences and workshops related to research manpower development.

Membership*

Dr. Mary Jo Burgess (1984)
University of Utah

Dr. Russell F. Doolittle (1984)
University of California, San Diego

Dr. Madison S. Spach (1985)
Duke University

Dr. Carlos Vallbona (1984)
Baylor College of Medicine

Dr. Marjorie B. Zucker (1985)
New York University

Division of Intramural Research

BOARD OF SCIENTIFIC COUNSELORS

Chairperson:
Dr. Mary E. Avery
Harvard University

Executive Secretary:
Dr. Jack Orloff
Director
Division of Intramural Research, NHLBI
National Institutes of Health
Bethesda, Maryland 20205
(301) 496-2116

Advises the Director, NIH, the Director, NHLBI, and the Director, Division of Intramural Research, on NHLBI's intramural research programs.

Membership*

Dr. Isidore S. Edelman (1982)
Columbia University

Dr. Mary E. Jones (1984)
University of North Carolina, Chapel Hill

Dr. Francis H. Ruddle (1984)
Yale University

Dr. Daniel Steinberg (1984)
University of California, San Diego

Dr. Paul N. Yu (1982)
University of Rochester

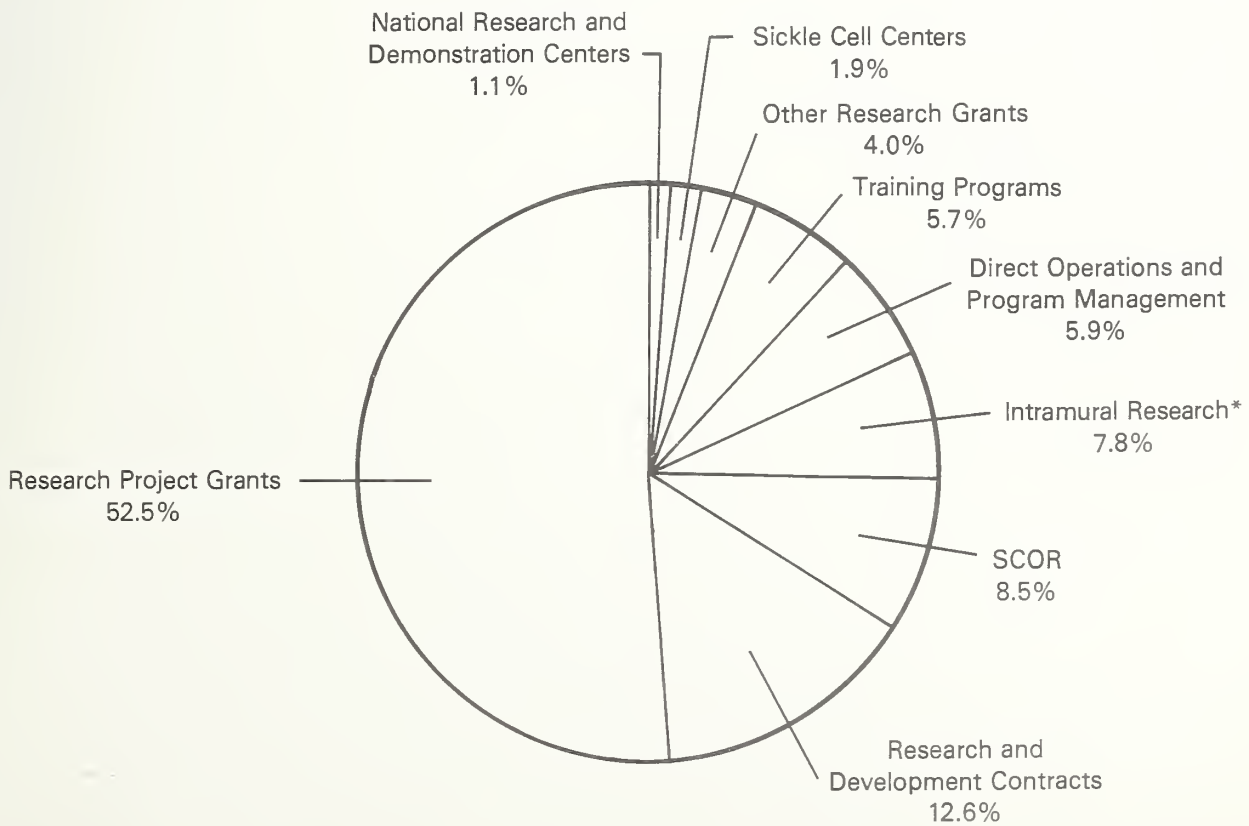
* Current as of April 15, 1982.

8. Fiscal Year 1981 Budget Overview

NHLBI Obligations by Budget Mechanism: Fiscal Year 1981

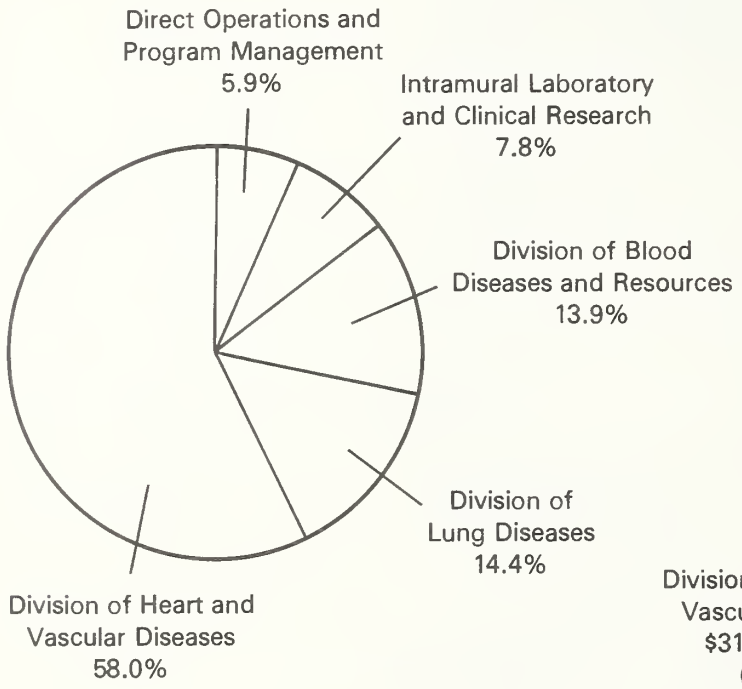
BUDGET MECHANISM	OBLIGATED DOLLARS FY 1981	PERCENT OF TOTAL NHLBI FY 1981 BUDGET
Research Project Grants	$289,051,155	52.5
Specialized Centers of Research (SCOR)	46,930,139	8.5
Sickle Cell Centers	10,626,821	1.9
National Research and Demonstration Centers	6,047,310	1.1
Other Research Grants	21,685,975	4.0
Research Career Programs	(12,738,546)	(2.3)
Training Programs	31,459,551	5.7
Research and Development Contracts	69,025,169	12.6
Intramural Laboratory and Clinical Research*	42,652,710	7.8
Direct Operations and Program Management*	32,593,669	5.9
Total, NHLBI	**$550,072,499**	**100.0**

* Includes Intramural and OD, NHLBI, Research Contracts.

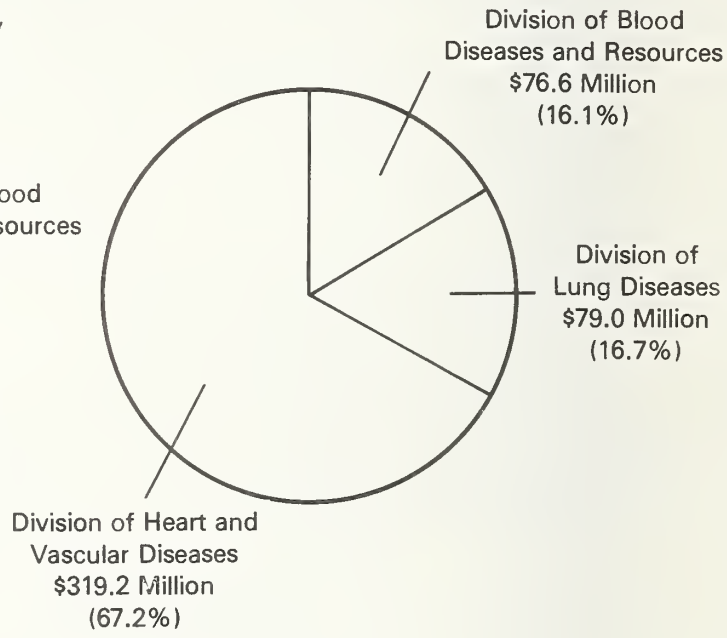

National Research and Demonstration Centers 1.1%
Sickle Cell Centers 1.9%
Other Research Grants 4.0%
Training Programs 5.7%
Direct Operations and Program Management 5.9%
Intramural Research* 7.8%
SCOR 8.5%
Research and Development Contracts 12.6%
Research Project Grants 52.5%

NHLBI Obligations by Budget Activity: Fiscal Year 1981

Total Fiscal Year 1981
Obligations — $550.1 Million


Direct Operations and Program Management 5.9%
Intramural Laboratory and Clinical Research 7.8%
Division of Blood Diseases and Resources 13.9%
Division of Lung Diseases 14.4%
Division of Heart and Vascular Diseases 58.0%

Total Fiscal Year 1981
Extramural Obligations — $474.8 Million


Division of Blood Diseases and Resources $76.6 Million (16.1%)
Division of Lung Diseases $79.0 Million (16.7%)
Division of Heart and Vascular Diseases $319.2 Million (67.2%)

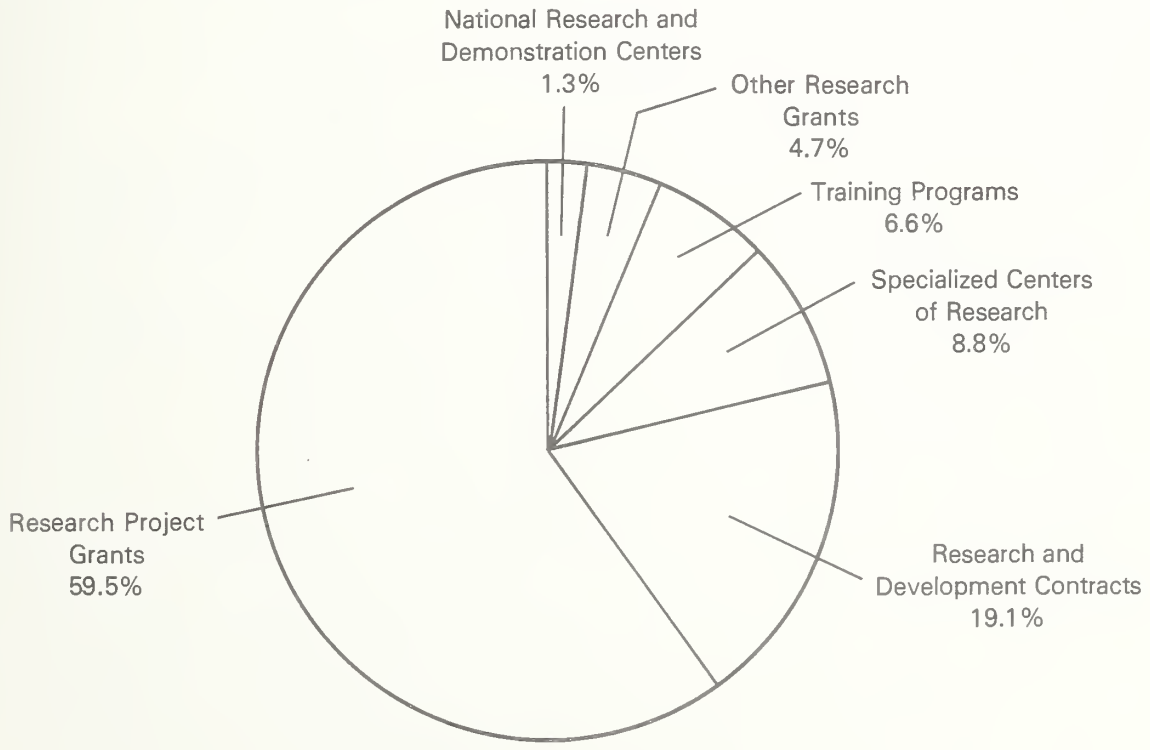
For detailed data on fiscal year 1981
- research grants, see Chapter 10;
- contracts, see Chapter 11;
- training, see Chapter 12; and
- geographic distribution of obligations, see Chapter 13.

Division of Heart and Vascular Diseases: Obligations by Budget Mechanism

BUDGET MECHANISM	OBLIGATED DOLLARS
Research Project Grants	$190,093,859
Specialized Centers of Research	28,025,877
National Research and Demonstration Centers	4,018,439
Other Research Grants	15,049,705
Research Career Programs	(7,203,467)
Research and Development Contracts	60,980,041
Training Programs	21,007,318
Total, DHVD	**$319,175,239**

Total DHVD Fiscal Year 1981 Obligations—$319,175,239

(This Represents 67.2% of Total NHLBI Extramural Obligations of $474,826,120)

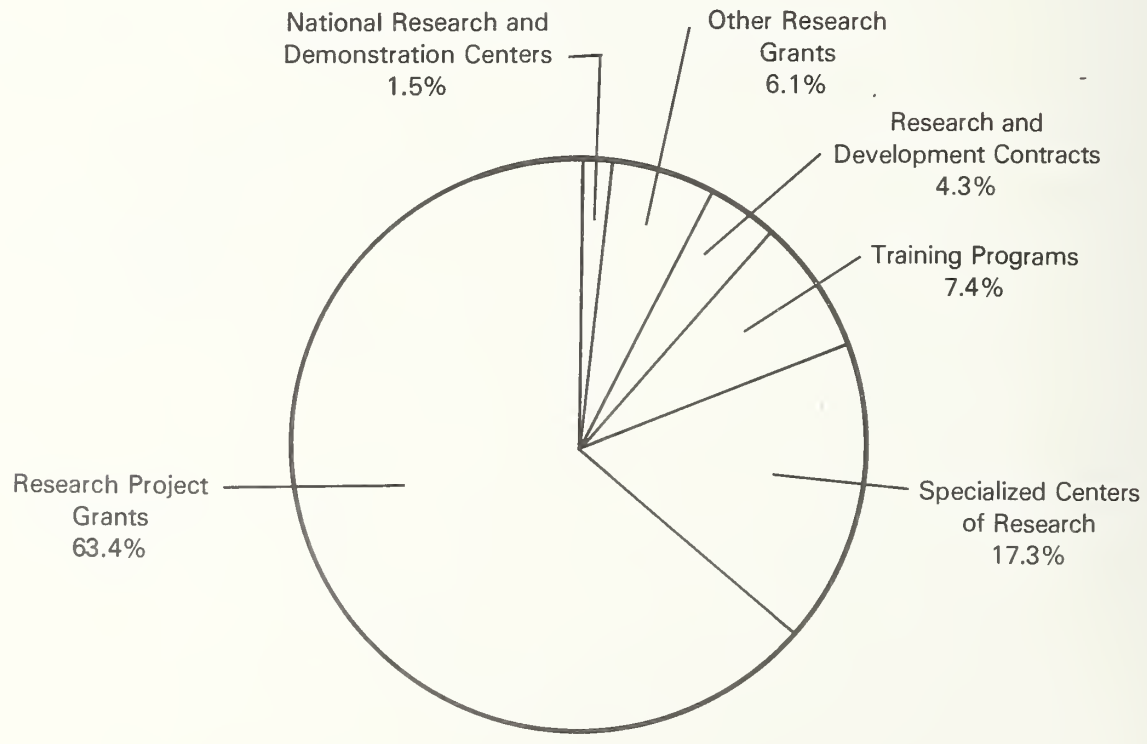

National Research and Demonstration Centers 1.3%
Other Research Grants 4.7%
Training Programs 6.6%
Specialized Centers of Research 8.8%
Research and Development Contracts 19.1%
Research Project Grants 59.5%

Division of Lung Diseases: Obligations by Budget Mechanism

BUDGET MECHANISM	OBLIGATED DOLLARS
Research Project Grants	$50,077,972
Specialized Centers of Research	13,685,321
National Research and Demonstration Centers	1,219,198
Other Research Grants	4,807,897
Research Career Programs	(4,108,330)
Research and Development Contracts	3,387,762
Training Programs	5,855,253
Total, DLD	**$79,033,403**

Total DLD Fiscal Year 1981 Obligations—$79,033,403

(This Represents 16.7% of Total NHLBI Extramural Obligations of $474,826,120)

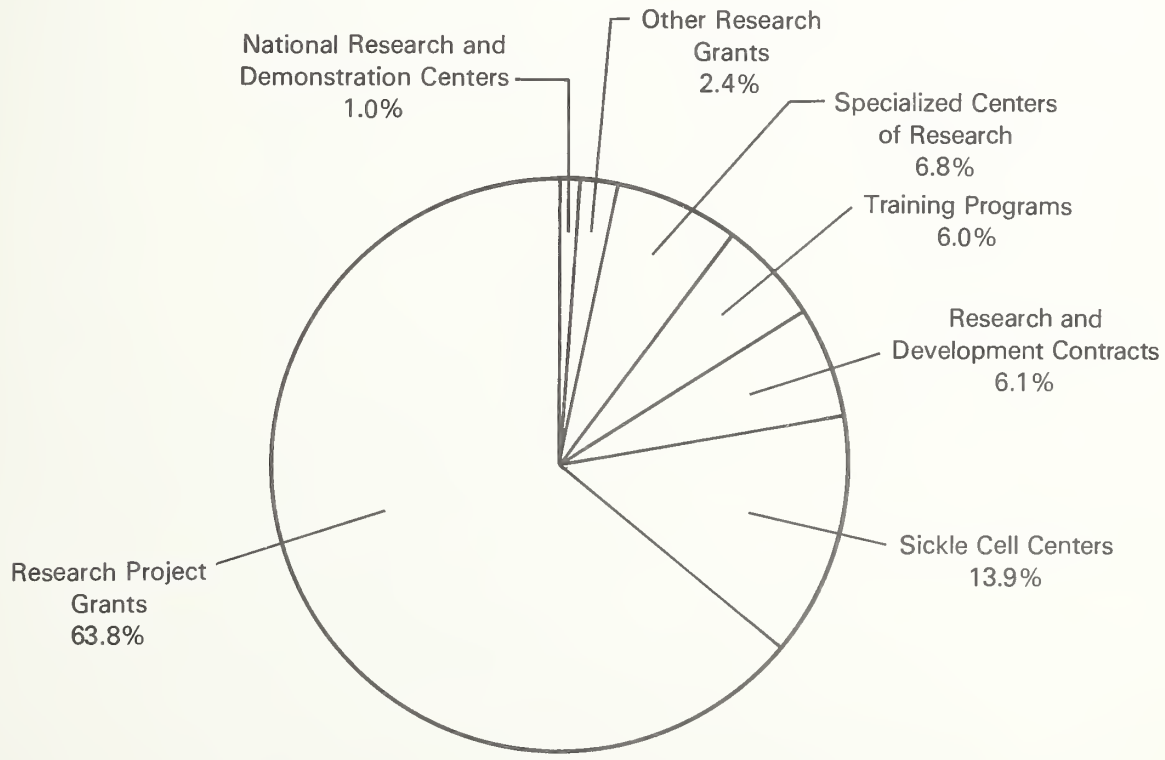

National Research and Demonstration Centers 1.5%
Other Research Grants 6.1%
Research and Development Contracts 4.3%
Training Programs 7.4%
Specialized Centers of Research 17.3%
Research Project Grants 63.4%

Division of Blood Diseases and Resources: Obligations by Budget Mechanism

BUDGET MECHANISM	OBLIGATED DOLLARS
Research Project Grants	$48,879,324
Specialized Centers of Research	5,218,941
Sickle Cell Centers	10,626,821
National Research and Demonstration Centers	809,673
Other Research Grants	1,828,373
Research Career Programs	(1,426,749)
Research and Development Contracts	4,657,366
Training Programs	4,596,980
Total, DBDR	**$76,617,478**

Total DBDR Fiscal Year 1981 Obligations—$76,617,478

(This Represents 16.2% of Total NHLBI Extramural Obligations of $474,826,120)


National Research and Demonstration Centers 1.0%
Other Research Grants 2.4%
Specialized Centers of Research 6.8%
Training Programs 6.0%
Research and Development Contracts 6.1%
Sickle Cell Centers 13.9%
Research Project Grants 63.8%

9. Long-Term Trends

Budget History of the Institute: Fiscal Years 1950–1982 (Dollars in Thousands)

FISCAL YEAR	BUDGET ESTIMATE TO CONGRESS	HOUSE ALLOWANCE	SENATE ALLOWANCE	APPROPRIATION	OBLIGATIONS	CUMULATIVE FISCAL YEAR OBLIGATIONS
1950	$ 4,630	$ 11,575	$ 29,117	$ 16,075	$ 15,768	$ 15,768
1951	8,800	8,800	9,400	9,400	8,497	24,265
1952	10,237	10,074	10,156	10,083	9,850	34,115
1953	9,779	9,623	12,000	12,000	11,398	45,513
1954	11,040	12,000	15,418	15,168	14,952	60,465
1955	14,570	16,168	17,168	16,668	16,595	77,060
1956	17,454	17,398	23,976	18,808	18,838	95,898
1957	22,106	25,106	33,396	33,396	32,392	128,290
1958	33,436	33,436	38,784	35,936	35,973	164,263
1959	34,820	36,212	49,529	45,613	45,468	209,731
1960	45,594	52,744	89,500	62,237	61,565	271,296
1961	63,162	71,762	125,166	86,900	86,239	357,535
1962	97,073	105,723	160,000	132,912	110,849	468,384
1963	126,898	143,398	149,498	147,398	120,597	588,981
1964	130,108	129,325	130,545	132,404	117,551	706,532
1965	125,640	124,521	125,171	124,824	124,412	830,944
1966	141,412	146,212	143,462	141,462	141,171	972,115
1967	148,407	154,770	164,770	164,770	164,342	1,136,457
1968	167,954	167,954	177,954	167,954	162,134	1,298,591
1969	169,735	164,120	172,120	166,928	161,834	1,460,425
1970	160,513	160,513	182,000	171,257	160,433	1,620,858
1971	171,747	178,479	203,479	194,901	194,826	1,815,684
1972	195,492	211,624	252,590	232,627	232,577	2,048,261
1973	255,280	300,000	350,000	300,000[1]	255,722	2,303,983
1974	265,000	281,415	320,000	302,915[2]	327,270[3]	2,631,253[3]
1975	309,299	321,196	330,000	327,996[4]	327,953[4]	2,959,206[4]
1976	324,934	329,079[5]	379,059[5]	370,096[6]	368,648	3,327,854
TQ[7]	59,715	58,015	58,015	58,763	60,639	3,388,493
1977	342,855	380,661	420,661	396,661	396,857[9]	3,785,350
1978	403,642	432,642	456,000	447,909[10]	447,968[9]	4,233,318
1979	454,336	485,584[11]	485,584[11]	506,384[12]	506,330	4,739,648
1980	507,344	527,544	527,544	527,544	527,298	5,266,896
1981	532,799	560,264	565,264	549,693	550,072[9]	5,816,558
1982	579,602	583,831	587,741	560,478[13]		

[1] Continuing resolution.

[2] The appropriation was reduced by a provision whereby up to 5% of any activity could be withheld. The adjusted appropriation for fiscal year 1974 was $289,550,000. This was reduced by transfers to $286,465,000.

[3] Includes $40,990,000 obligated in fiscal year 1974 from released fiscal year 1973 funds previously impounded.

[4] Includes $3,226,907 from released fiscal year 1973 funds previously impounded.

[5] Excludes Training and Fellowship Program.

[6] Includes $20,954,000 continuing resolution for Training and Fellowship Program.

[7] TQ = Transition Quarter, July 1–September 30, 1976.

[8] Exceeds appropriation due to carryover of unobligated balance from 1976.

[9] Exceeds appropriation due to collection of outside reimbursements.

[10] Continuing Resolution at the Conference Allowance level plus supplemental appropriation for payraise costs.

[11] Excludes Training and Fellowship Program.

[12] Includes $21,293,000 for Training and Fellowship Program. Reflects a transfer of $393,000 to OD/NIH for payraise cost.

[13] Continuing resolution through March 31, 1982.

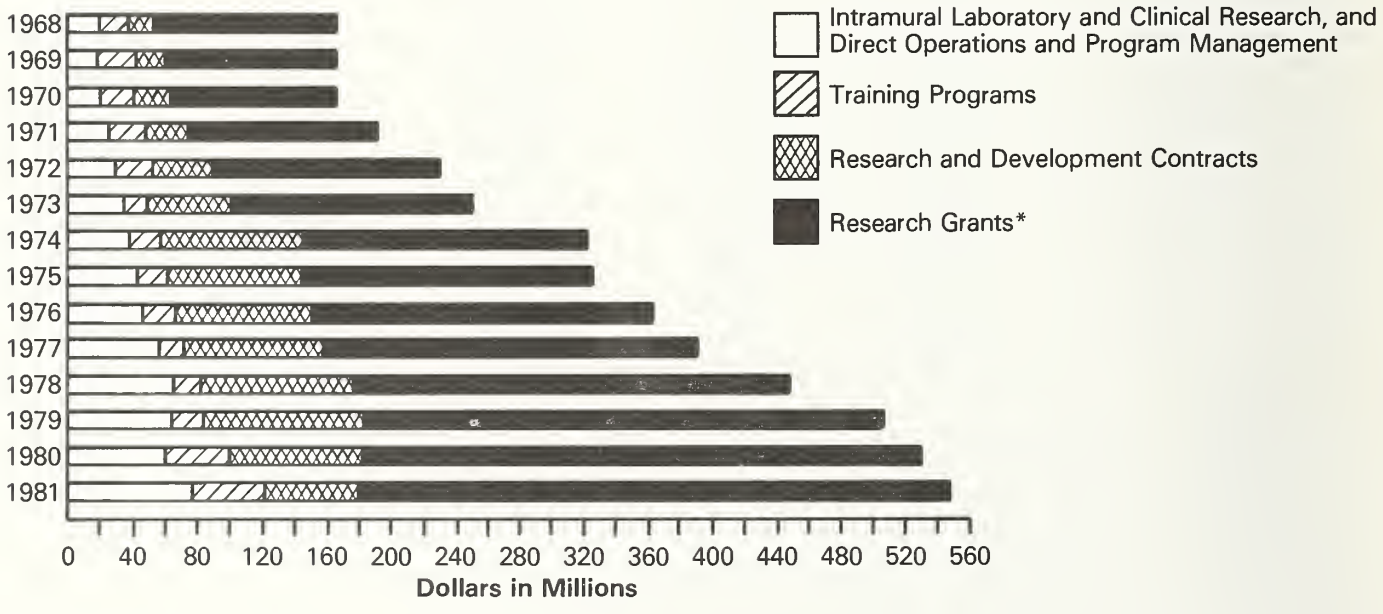
Obligations and Employment

FISCAL YEAR	OBLIGATIONS	STAFF*
1972	$224.3	618
1973	247.6	647
1974	326.3	692
1975	327.9	691
1976	368.6	749
1977	396.9	723
1978	448.0	770
1979	506.3	736
1980	527.2	735
1981	550.1	663†

* Full-time permanent employees as of the end of each fiscal year.

† Sixty-five additional positions classified "other than permanent" full time.

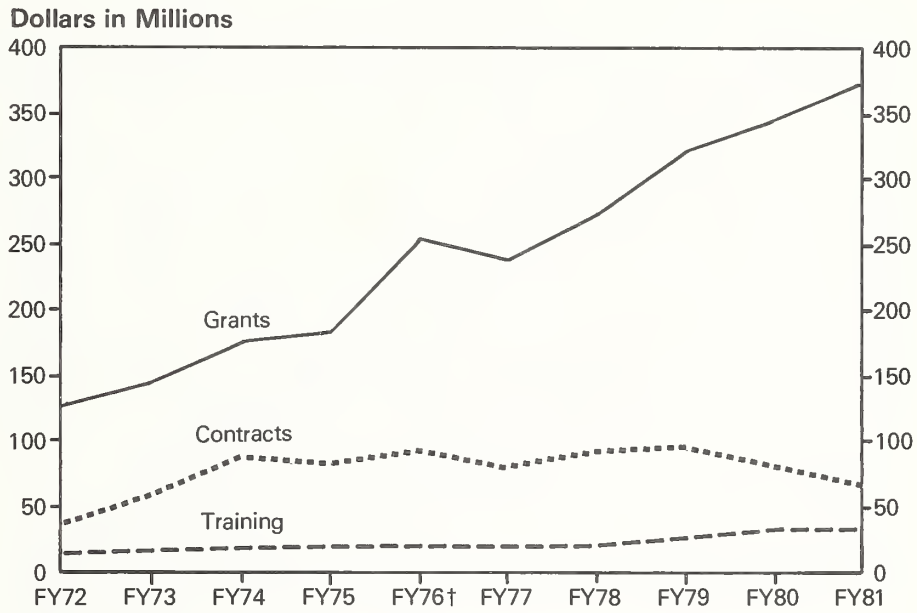
History of NHLBI Obligations by Budget Mechanism: Fiscal Years 1968–1981



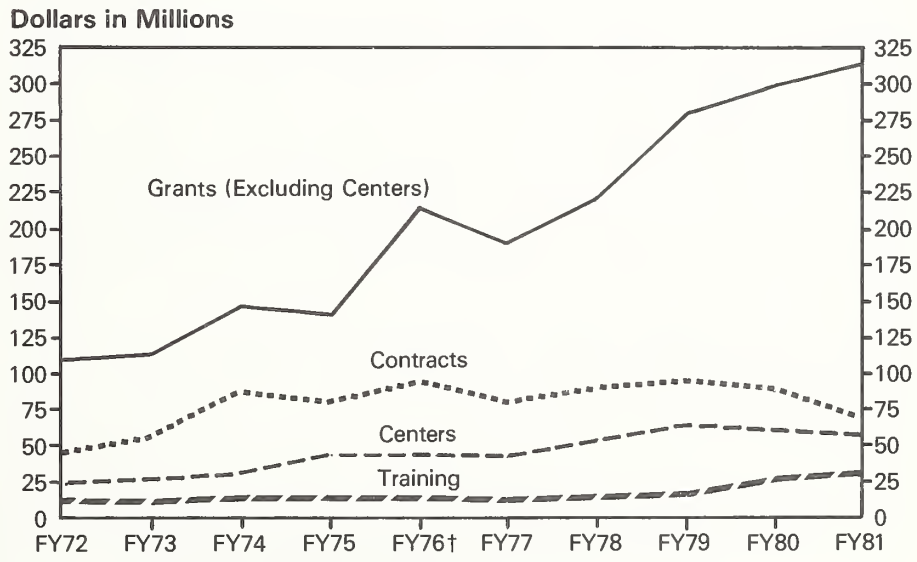
* Includes Research Career Programs.

Trends in Extramural Research Funding: NHLBI Fiscal Years 1972–1981

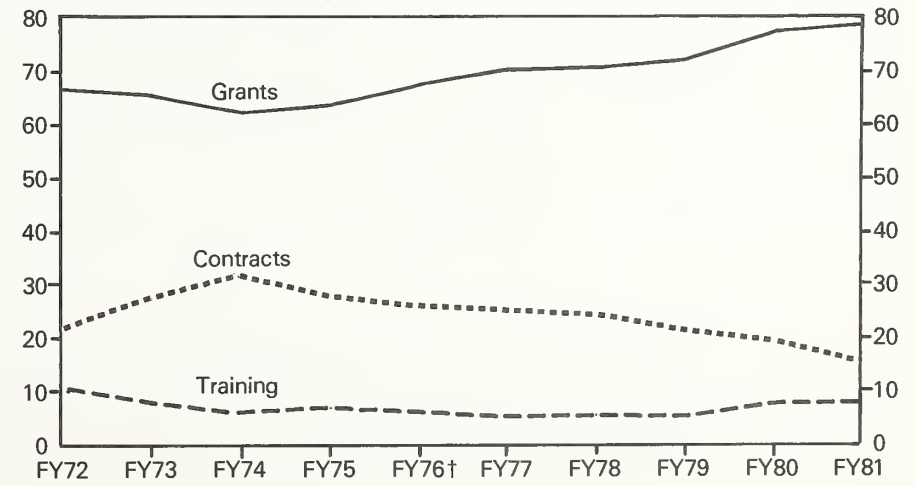
Grants,* Contracts, and Training (Dollars Funded)



Grants,* Centers, Contracts, and Training (Dollars Funded)



Grants,* Contracts, and Training (Percentage Trends)



* Includes Research Career Programs.

† Includes Transition Quarter.

NHLBI Obligations*

Current Dollars (Millions): Fiscal Years 1972–1981

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Increase 1972–1981
Heart	$139.3	$146.9	$191.8	$189.1	$215.3†	$226.6	$258.7	$294.1	$307.7	$319.2	$179.9
Lung	22.6	27.5	44.7	44.5	51.2	54.6	63.2	73.6	75.1	79.0	56.4
Blood	31.9	39.9	51.1	50.5	52.5†	57.2	62.9	71.8‡	72.2	76.6	44.7
DIR	18.3	19.3	21.6	25.7	29.3	33.5	36.0	38.1	39.6	42.7	24.4
DOPM	12.2	14.0	17.4	18.1	20.3	25.0	27.2	28.7	32.6	32.6	20.4
Total	**$224.3**	**$247.6**	**$326.3**	**$327.9**	**$368.6**	**$396.9**	**$448.0**	**$506.3**	**$527.2**	**$550.1**	**$325.8**

Constant Dollars (Millions): Fiscal Years 1972–1981

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Increase 1972–1981
Heart	$139.3	$140.2	$172.1	$153.3	$162.4†	$158.3	$168.2	$176.7	$169.4	$159.6	$ 20.3
Lung	22.6	26.2	40.1	36.1	38.6	38.1	41.1	44.2	41.3	39.5	16.9
Blood	31.9	38.1	45.9	40.9	39.6†	40.0	40.9	43.1‡	39.8	38.3	6.4
DIR	18.3	18.4	19.4	20.8	22.1	23.4	23.4	22.9	21.8	21.4	3.1
DOPM	12.2	13.4	15.3	14.7	15.3	17.5	17.7	17.2	17.9	16.3	4.1
Total	**$224.3**	**$236.3**	**$292.8**	**$265.8**	**$278.0**	**$277.3**	**$291.3**	**$304.1**	**$290.2**	**$275.1**	**$ 50.8**

Budget Categories (Percent): Fiscal Years 1972–1981

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	Increase 1972–1981 Current	Increase 1972–1981 Constant
Heart	62.1	59.3	58.7	57.7	58.4†	57.1	57.8	58.1	58.4	58.0	129.1	14.6
Lung	10.1	11.1	13.7	13.6	13.9	13.8	14.1	14.5	14.2	14.4	249.6	74.8
Blood	14.2	16.1	15.7	15.4	14.2†	14.4	14.0	14.2‡	13.7	13.9	140.1	20.1
DIR	8.2	7.8	6.6	7.8	8.0	8.4	8.0	7.5	7.5	7.8	133.3	16.9
DOPM	5.4	5.7	5.3	5.5	5.5	6.3	6.1	5.7	6.2	5.9	167.2	33.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**145.3**	**22.6**

This table is based on the Biomedical Research and Development Price Index developed by the Office of Management and Budget:
1972 = 1.0000; 1973 = 1.0477; 1974 = 1.1143; 1975 = 1.2335; 1976 = 1.3256; 1977 = 1.4312; 1978 = 1.5378; 1979 = 1.6645; 1980 = 1.8163; 1981 = 2.0000.

* Excludes General Research Support Grants FY 1972–FY 1974; 1972 = $8.3 million; 1973 = $8.1 million; 1974 = $1.1 million.

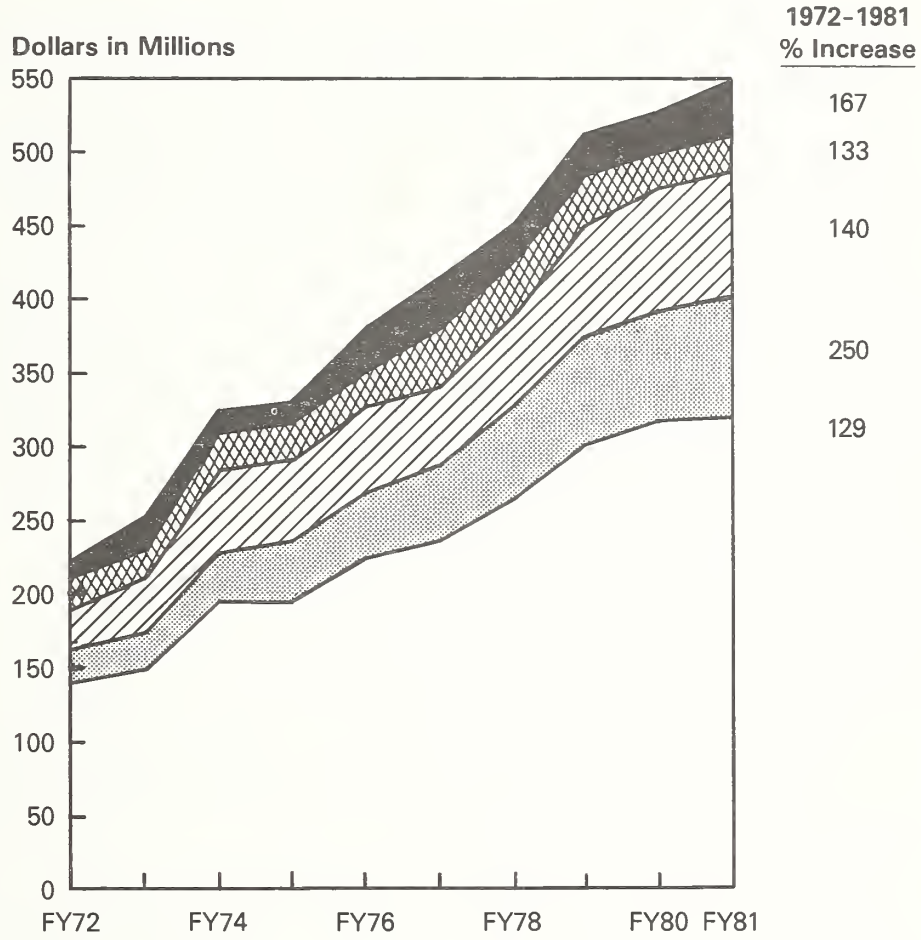
† Biomaterials moved to DHVD from DBDR ($3.5 million).

‡ Sickle Cell Clinics ($3.75 million) was transferred to HSA in fiscal year 1979.

NHLBI Obligations:* Fiscal Years 1972–1981

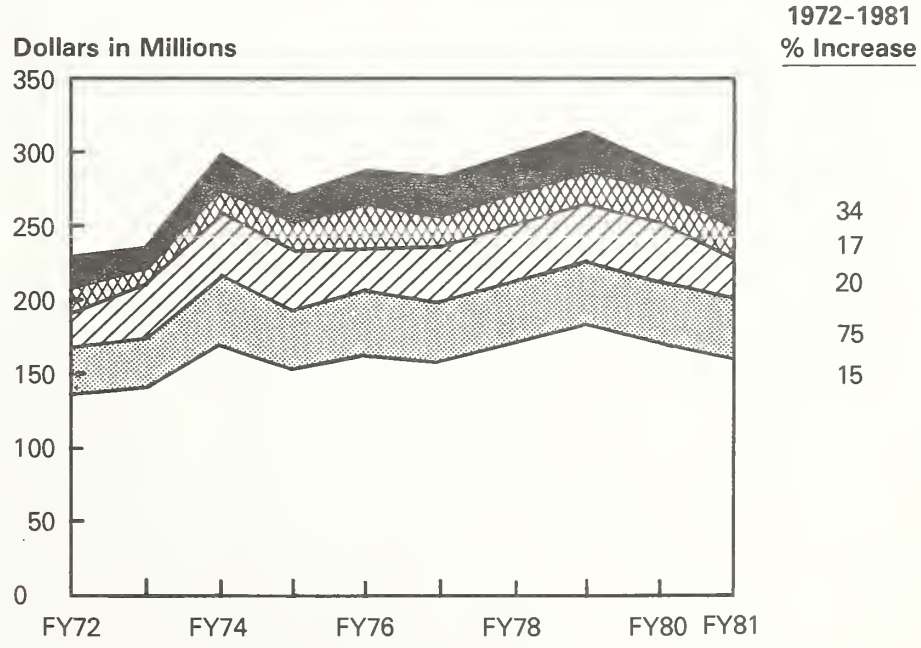
CURRENT DOLLARS

	Increase $
DOPM†	20.4
Intramural Research	24.4
Blood	44.7
Lung	56.4
Heart	179.9
Total NHLBI	**325.8**



CONSTANT 1972 DOLLARS

	Increase $
DOPM†	4.1
Intramural Research	3.1
Blood	6.4
Lung	16.9
Heart	20.3
Total NHLBI	**50.8**



* Excludes General Research Support Grants FY 1972–1974.

† DOPM = Direct Operations and Program Management.

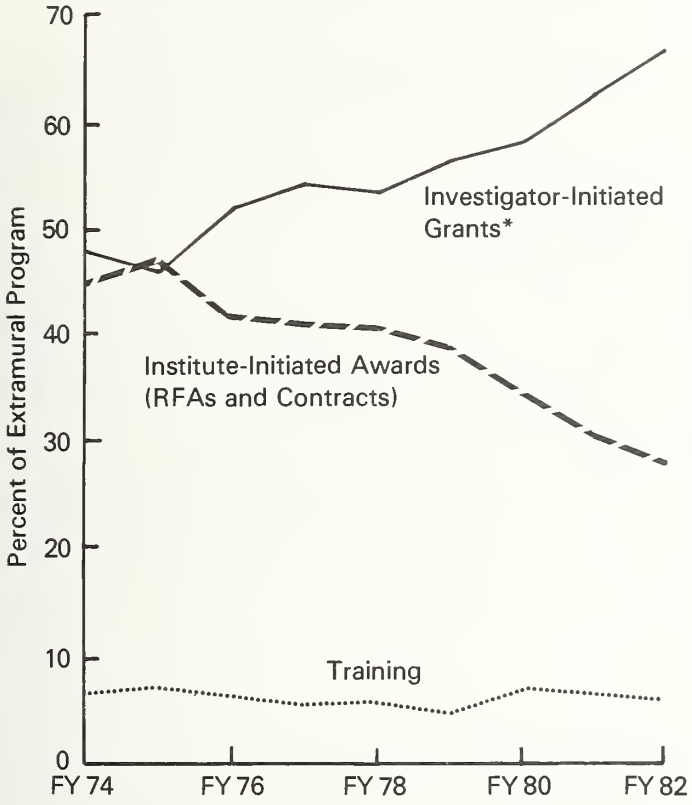
NHLBI Extramural Programs: Fiscal Years 1974–1982 (Dollars in Millions)

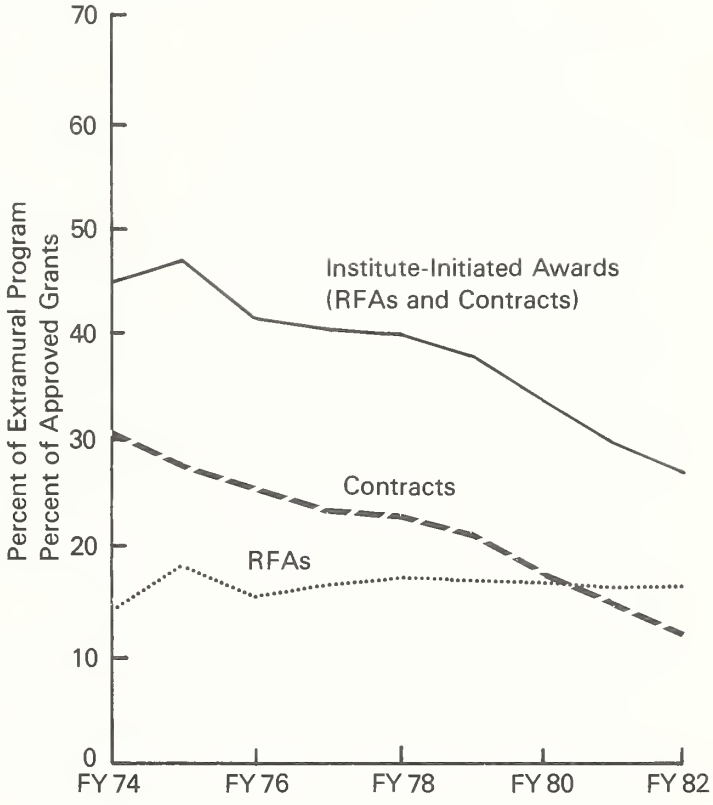
	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982
Investigator-Initiated Grants	$133.5	$126.0	$161.3	$177.3	$197.9	$238.8	$255.6	$284.3	$301.5
RFA Grants	41.8	52.4	49.0	57.6	68.3	76.8	78.1	75.2	76.8
Research Career Program	4.2	4.8	5.5	6.4	8.7	9.5	11.3	12.7	14.5
Training	19.4	20.0	20.6	17.1	21.2	21.3	32.0	31.5	27.8
R&D Contracts	88.7	80.9	82.6	80.0	88.7	93.1	78.0	68.6	56.1
Total Extramural	**$287.6**	**$284.1**	**$319.0**	**$338.5**	**$384.8**	**$439.5**	**$455.0**	**$472.3**	**$476.6**

(As Percent of Total Extramural Program)

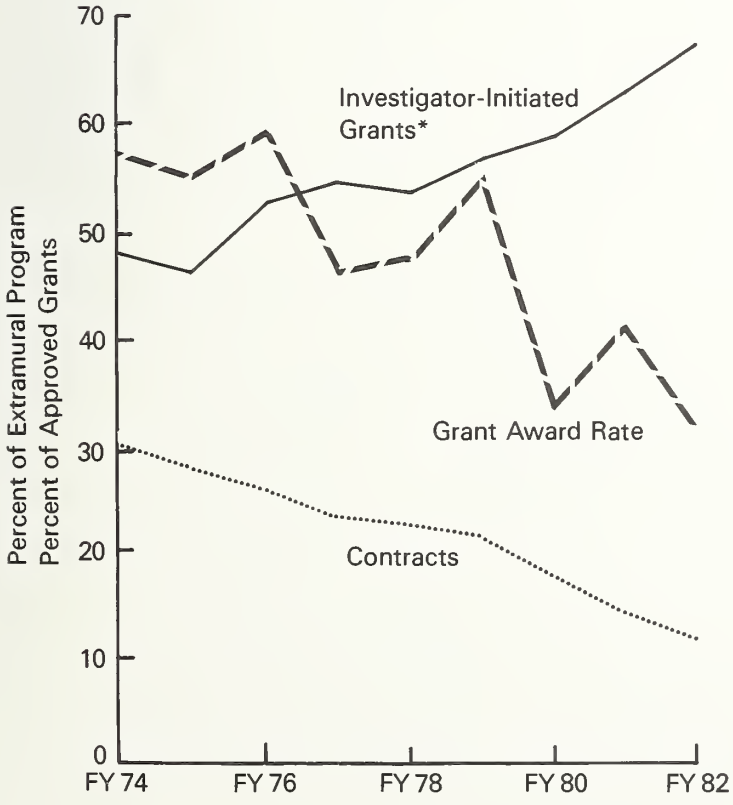
	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982
Investigator-Initiated Awards									
Investigator-Initiated Grants	46.4%	44.4%	50.6%	52.4%	51.4%	54.3%	56.2%	60.2%	63.3%
Research Career Programs	1.5	1.7	1.7	1.9	2.3	2.2	2.5	2.7	3.0
Subtotal	(47.9)	(46.1)	(52.3)	(54.3)	(53.7)	(56.5)	(58.7)	(62.9)	(66.3)
Institute-Initiated Awards									
RFAs (including centers)	14.5	18.4	15.4	17.0	17.7	17.5	17.2	15.9	16.1
R&D Contracts	30.8	28.5	25.9	23.6	23.1	21.2	17.1	14.5	11.8
Subtotal	(45.3)	(46.9)	(41.3)	(40.6)	(40.8)	(38.7)	(34.3)	(30.4)	(27.9)
Training	6.7	7.0	6.5	5.1	5.5	4.8	7.0	6.7	5.8
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

NHLBI Extramural Programs: Fiscal Years 1974–1982





* Includes Research Career Programs



* Includes Research Career Programs

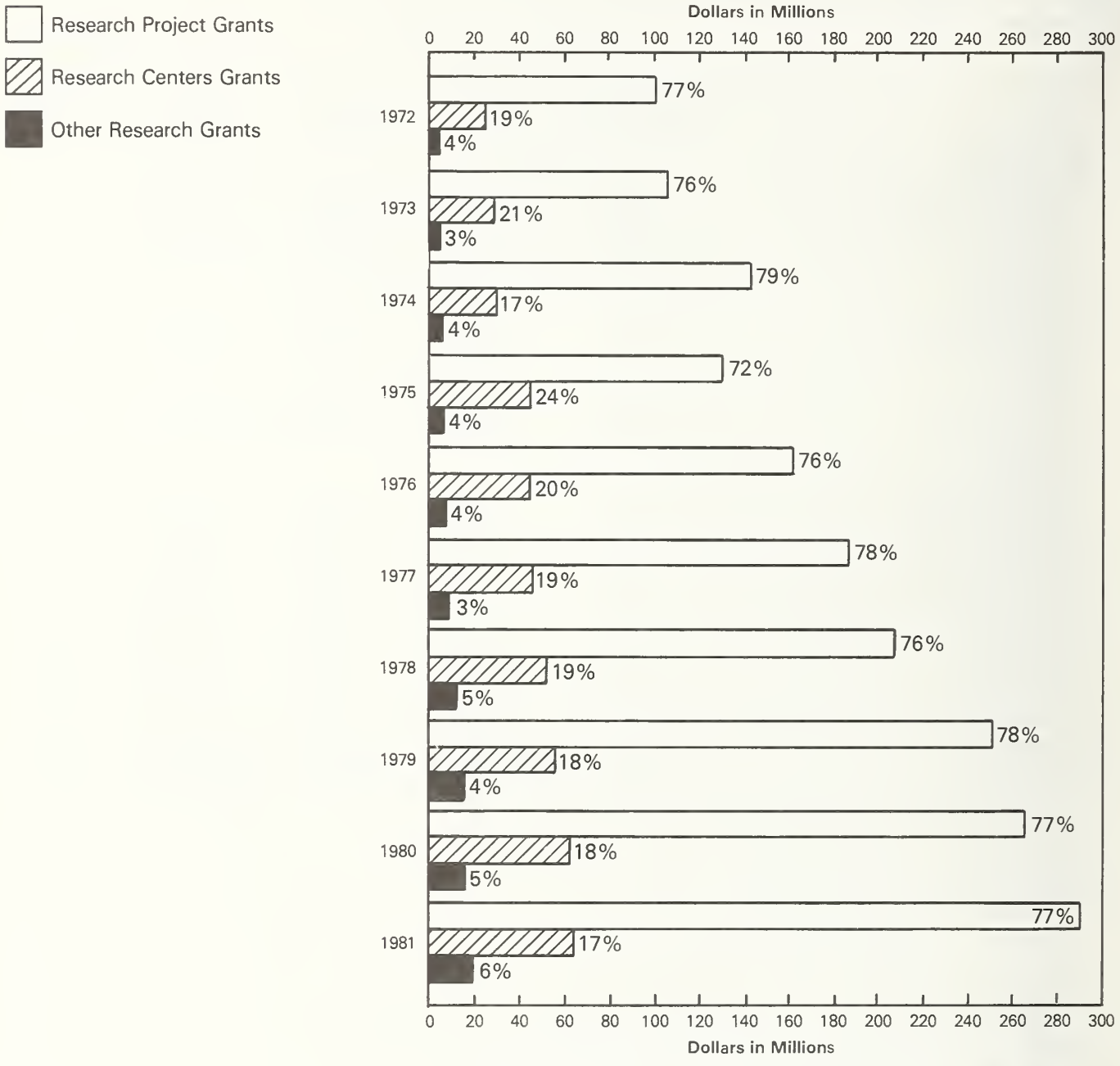
10. Research Grants

NHLBI Research Grants by Activity: Fiscal Year 1981

	NUMBER OF GRANTS OBLIGATED	DIRECT COST	INDIRECT COST	TOTAL COST	PERCENT OF TOTAL NHLBI RESEARCH GRANT DOLLARS
Research Projects					
Regular Research Grants (R01)	2,064	$146,148,587	$ 61,876,045	$208,024,632	55.6
Program Project Grants (P01)	103	51,982,833	20,773,397	72,756,230	19.4
Young Investigator Awards (R23)	189	5,836,311	2,433,982	8,270,293	2.2
Subtotal, Research Project Grants	2,356	203,967,731	85,083,424	289,051,155	77.2
Research Centers					
Specialized Centers of Research (P50)	47	32,643,378	14,286,761	46,930,139	12.6
Sickle Cell Centers (P60)	10	7,853,837	2,772,984	10,626,821	2.8
National Research and Demonstration Centers (P60)	3	4,610,849	1,436,461	6,047,310	1.6
Subtotal, Center Grants	60	45,108,064	18,496,206	63,604,270	17.0
Other Research					
Special Research Career Awards:					
Diabetes Mellitus (K01)	8	384,620	31,245	415,865	0.1
Research Career Development Awards (K04)	163	5,789,270	463,141	6,252,411	1.7
Research Career Awards (K06)	21	634,425	50,753	685,178	0.2
Preventive Cardiology Awards (K07)	14	1,036,627	84,485	1,121,112	0.3
Pulmonary Academic Awards (K07)	23	948,522	83,445	1,031,967	0.3
Pulmonary Faculty Training Awards (K08)	24	691,010	33,373	724,383	0.2
Clinical Investigator Awards (K08)	56	2,327,214	180,416	2,507,630	0.6
Subtotal, Research Career Program	309	11,811,688	926,858	12,738,546	3.4
Other (R09, R10, R13, R25, S06)	20	8,423,526	523,903	8,947,429	2.4
Subtotal, Other Research	329	20,235,214	1,450,761	21,685,975	5.8
Total, NHLBI Research Grants	**2,745**	**$269,311,009**	**$105,030,391**	**$374,341,400**	**100.0**

Total Obligations — $374,341,400

Research Project Grants, Research Centers Grants, and Other Research Grants: Obligations for Fiscal Years 1972–1981



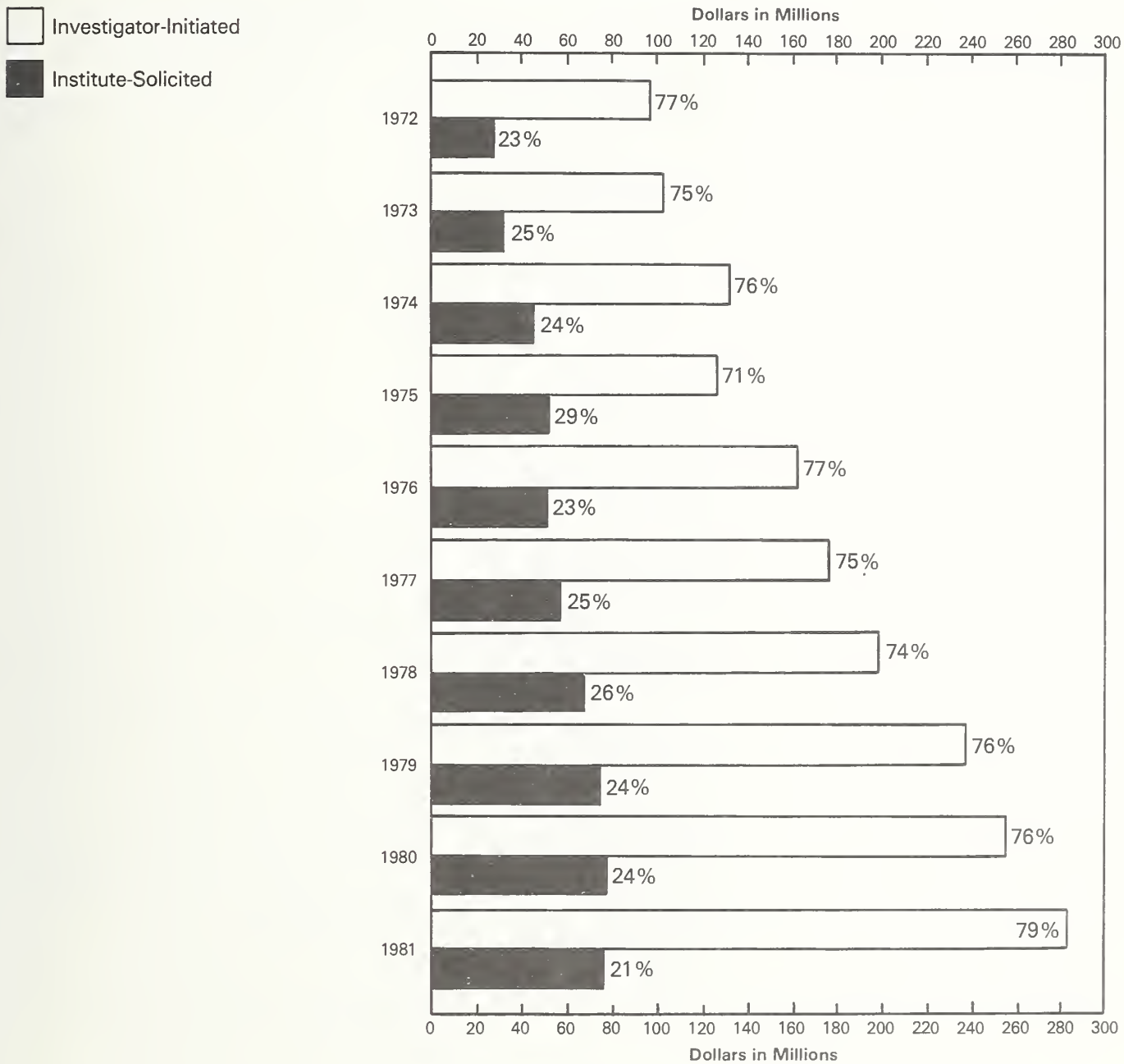
Percentages indicate fraction of grant expenditures in each category each year.

(Dollars in Thousands)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Research Project Grants	$101,321	$107,643	$142,221	$132,033	$163,540	$187,365	$209,191	$253,478	$266,896	$289,051
Research Centers Grants	25,388	29,396	31,206	44,744	44,481	46,021	53,151	57,831	62,306	63,604
Other Research Grants	4,573*	4,489*	6,126	6,974	8,401	9,218	14,145	15,013	17,308	21,686
Total	$131,282	$141,528	$179,553	$183,751	$216,422	$242,604	$276,487	$326,322	$346,510	$374,341

* Excludes General Research Support Grants: includes Research Career Programs.

Investigator-Initiated vs. Institute-Solicited Research Grants:* Total Obligations for Fiscal Years 1972–1981

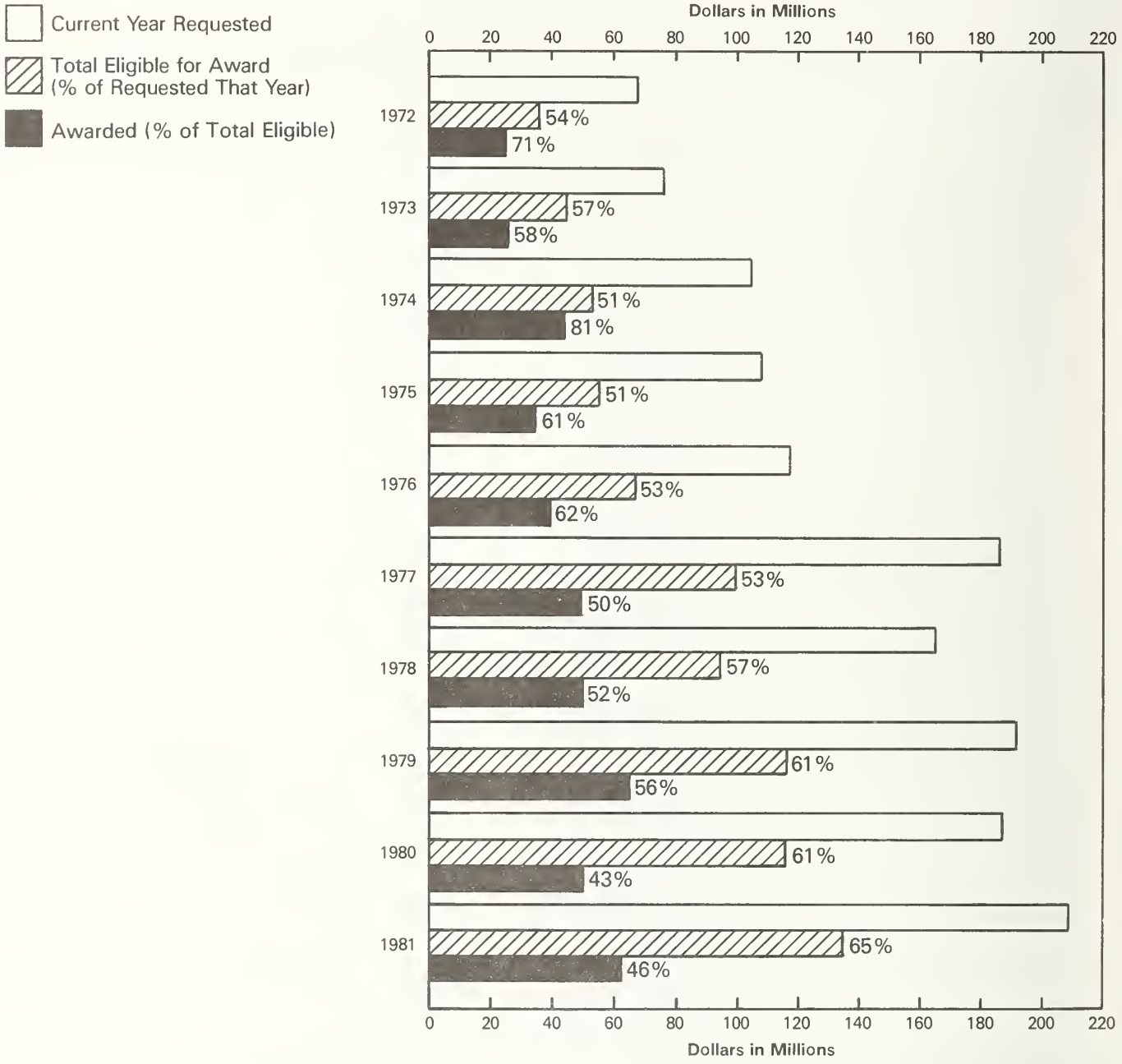


(Dollars in Millions)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Investigator-Initiated	$ 98.1	$103.4	$133.5	$126.1	$161.3	$177.2	$197.9	$238.9	$255.3	$277.5
Institute-Solicited†	28.9	33.9	41.8	52.4	49.0	57.6	68.3	76.8	78.1	75.2
Total	$127.0	$137.3	$175.3	$178.5	$210.3	$234.8	$266.2	$315.7	$333.4	$352.7

* Includes Research Project Grants, Program Project Grants, and New Investigator Awards.
† Includes Centers and RFA's.

Regular Research Grant* Applications, Approvals, and Awards: Direct Cost for Fiscal Years 1972–1981



(Dollars in Millions)

	1972	1973	1974†	1975	1976	1977	1978	1979	1980	1981
Current Year Requested	$68.1	$77.5	$104.9†	$108.5	$118.5	$186.5	$163.9	$192.3	$187.4	$208.0
Current Year Approved	36.8	43.9	52.2	55.6	61.9	98.5	90.8	106.9	114.4	135.2
Total Eligible for Award‡	36.9	44.1	53.4	55.7	67.0	98.6	93.8	117.4	114.8	135.6
Awarded	26.0	25.4	43.6	33.9	38.6	49.7	49.0	65.4	49.3	62.4

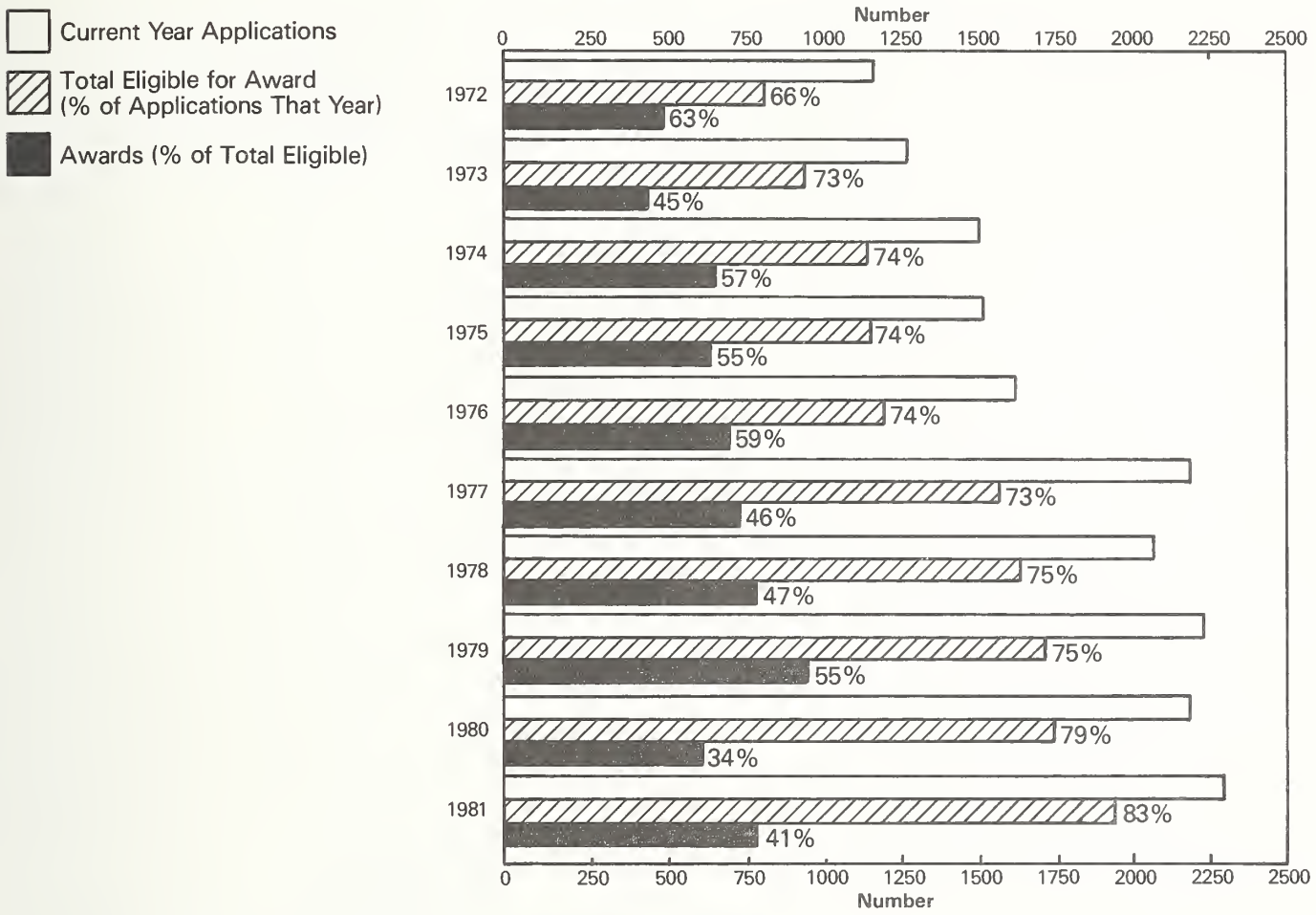
* Includes R01, R23, P01 grants.

† Reflects release of fiscal year 1973 impounded funds.

‡ Includes unfunded approvals carried over from previous year.

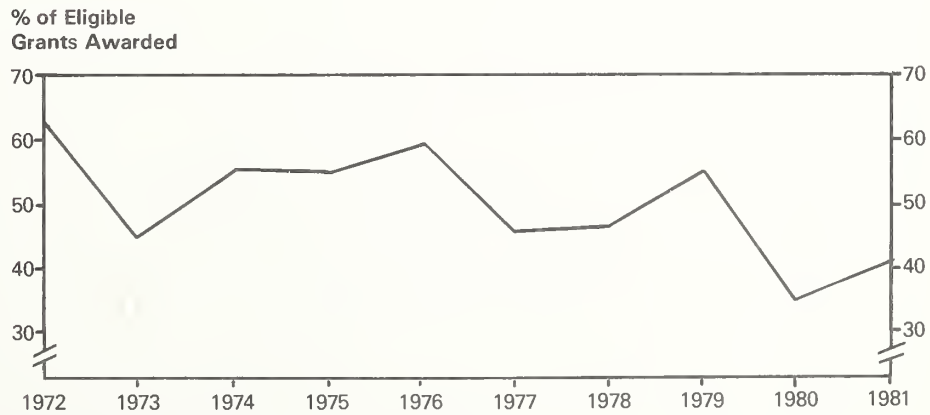
Source of Data: Division of Research Grants, NIH.

Number of Research Project Grant* Applications, Approvals, and Awards: Fiscal Years 1972–1981



NUMBER OF GRANTS

	1972	1973	1974†	1975	1976	1977	1978	1979	1980	1981
Current Year Applications Reviewed	1,167	1,279	1,501	1,531	1,615	2,180	2,129	2,239	2,190	2,289
Current Year Approvals Recommended	773	933	1,117	1,137	1,192	1,600	1,595	1,679	1,735	1,890
Total Eligible‡	777	937	1,155	1,141	1,195	1,602	1,625	1,699	1,741	1,897
Awards	492	426	662	629	707	729	759	942	589	774



* Includes R01, R23, P01 grants.
† Reflects release of fiscal year 1973 impounded funds.
‡ Includes unfunded approvals carried over from previous years which were funded within a specific year.
Source of Data: Division of Research Grants, NIH.

NHLBI Research Project Grants (R01, P01, R23):* Amount Funded, Fiscal Years 1972–1981 (Dollars in Millions)

FISCAL YEAR	TOTAL NONCOMPETING AND COMPETING	NONCOMPETING	COMPETING			
			TOTAL	NEW COMPETING	RENEWAL COMPETING	COMPETING SUPPLEMENTS
1972	$ 97.7	$ 64.6	$33.1	$14.3	$17.2	$1.6
1973	107.6	75.2	32.4	12.7	18.9	0.8
1974	137.8	80.5	57.3	30.5	24.4	2.4
1975	132.5	87.7	44.8	26.0	17.2	1.6
1976	164.6	113.5	51.1	30.7	18.9	1.5
1977	190.1	125.3	64.8	33.7	27.1	4.0
1978	209.1	141.6	67.5	33.4	32.2	1.9
1979	253.5	164.7	88.8	47.7	39.4	1.7
1980	266.9	200.4	66.5	33.1	30.8	2.6
1981	289.1	202.6	86.5	40.2	43.5	2.8

* R01 = Research Project Grants, P01 = Research Program Project Grants, R23 = New Investigator Research Grants.

Growth of Indirect Cost Rates of Research Grants:* Fiscal Years 1966-1981 (Dollars in Thousands)

FISCAL YEAR	DIRECT COST	INDIRECT COST	INDIRECT COST AS A PERCENT OF DIRECT COST	TOTAL COST
1966	$ 74,928	$13,051	17.4	$ 87,980
1967	81,389	15,673	19.3	97,062
1968	77,892	17,019	21.8	94,911
1969	72,128	18,007	25.0	90,136
1970	68,467	17,986	26.3	86,453
1971	72,021	20,021	27.8	92,042
1972	81,350	25,035	30.8	106,386
1973	86,540	27,674	32.0	114,214
1974	109,692	37,798	34.5	147,490
1975	97,205	34,828	35.8	132,033
1976	120,338 (147,581)†	43,201 (52,982)†	35.9	163,539 (200,563)†
1977	137,025	49,745	36.3	186,770
1978	150,325	57,020	37.9	207,345
1979	182,263	71,215	39.1	253,478
1980	190,113	76,783	40.2	266,896
1981	203,968	85,083	41.7	289,051

* Includes Regular Project Grants, Program Project Grants, New Investigator Awards, and Sickle Cell Centers. Excludes Research Career Programs, Cooperative Clinical Research, Scientific Evaluation and Conference Grants, Research and Demonstration Centers, and SCOR.

† Numbers in parentheses include Transition Quarter dollars.

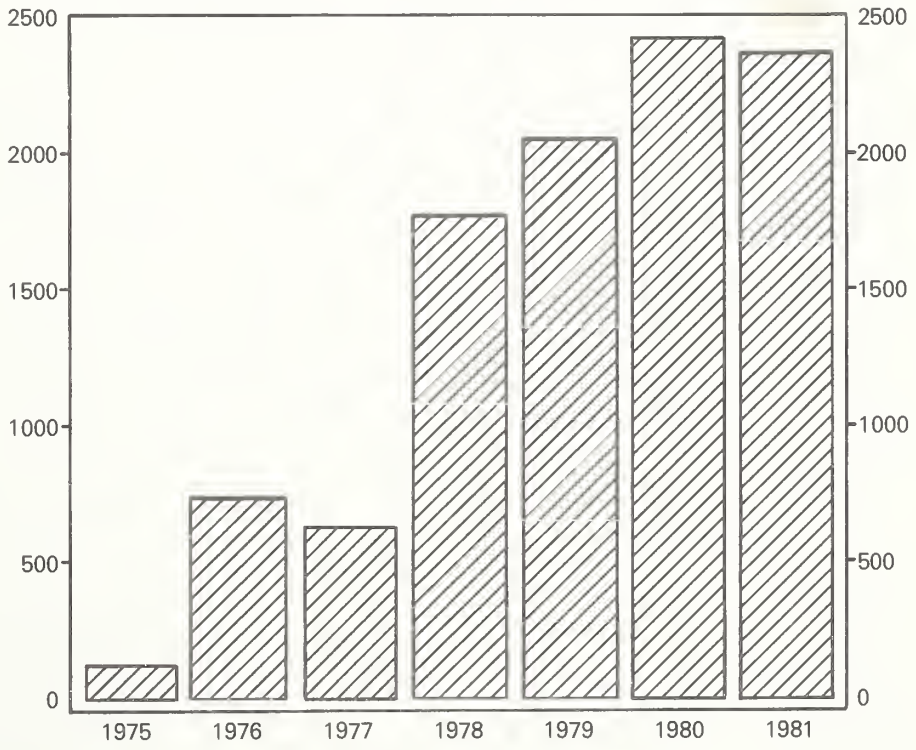
NHLBI Minority Biomedical Programs

PROGRAM	FY 1975	FY 1976*	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Minority Biomedical Support (MBS)	$113,696	$744,205	$440,872	$1,397,921	$1,587,081	$1,737,586	$1,716,545
Minority Access to Research Careers (MARC)	—	—	16,000	41,148	76,626	89,504	71,613
Minority Hypertension Research Development Summer Program	—	—	177,180	332,778	404,618	585,126	590,856
Total, Minority Programs	**$113,696**	**$744,205**	**$634,052**	**$1,771,847**	**$2,068,325**	**$2,412,216**	**$2,379,014**

* Includes Transition Quarter ($217,847).

Total Minority Biomedical Support

Dollars in Thousands



Specialized Centers of Research (SCOR), Program Initiated in Fiscal Year 1971

The Specialized Centers of Research were instituted to advance basic knowledge and to generate the most effective techniques and methods of clinical management and prevention in the areas of arteriosclerosis, hypertension, ischemic heart disease, pulmonary diseases, and thrombosis.

ARTERIOSCLEROSIS

Nine specialized centers are involved in the study of hyperlipidemia and vascular diseases, including animal and tissue studies and basic laboratory investigations.

OBLIGATIONS

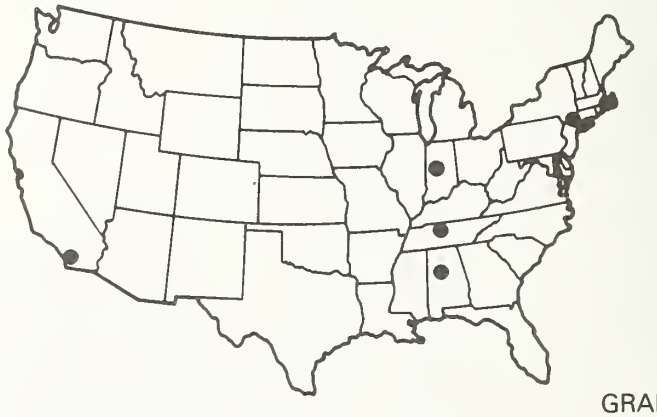
Fiscal Year 1981 . . . . . $11,188,425

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

1. Baylor College of Medicine, Houston, Texas . . . . . HL 27341
2. Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, North Carolina . . . . . HL 14164
3. University of California, San Diego, La Jolla, California . . . . . HL 14197
4. University of California, San Francisco, California . . . . . HL 14237
5. University of Iowa, Iowa City, Iowa . . . . . HL 14230
6. Louisiana State University, Baton Rouge, Louisiana . . . . . HL 15103
7. University of Chicago, Chicago, Illinois . . . . . HL 15062
8. Columbia University, New York, New York . . . . . HL 21006
9. University of Texas, San Antonio, Texas . . . . . HL 19362

HYPERTENSION

Six centers focusing on the problems of hypertension have been studying the etiology and pathogenesis of hypertension and developing and applying new knowledge for the improved diagnosis and management of the disease.



OBLIGATIONS

Fiscal Year 1981 . . . . . $4,756,216

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

1. Boston University, Boston, Massachusetts . . . . . HL 18318
2. Cornell University Medical School, New York, New York . . . . . HL 18323
3. Indiana University Foundation, Indianapolis, Indiana . . . . . HL 14159
4. University of Alabama, Birmingham, Alabama . . . . . HL 25451
5. University of California, San Diego, La Jolla, California . . . . . HL 25457
6. Vanderbilt University School of Medicine, Nashville, Tennessee . . . . . HL 14192

ISCHEMIC HEART DISEASE

Eight SCORs are currently addressing a wide range of biomedical issues including means of protecting ischemic myocardium, quantifying infarct size, and testing methods of treating angina pectoris.

OBLIGATIONS

Fiscal Year 1981 . . . . . $12,081,236

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Cedars-Sinai Medical Center, Los Angeles, California	HL 17651
2. Duke University, Durham, North Carolina	HL 17670
3. Harvard Medical School, Boston, Massachusetts	HL 26215
4. Johns Hopkins University, Baltimore, Maryland	HL 17655
5. University of Alabama, Birmingham, Alabama	HL 17667
6. University of California, San Diego, La Jolla, California	HL 17682
7. University of Texas, Southwestern Medical School, Dallas, Texas	HL 17669
8. Washington University, St. Louis, Missouri	HL 17646

CHRONIC AIRWAY DISEASES

Three specialized centers are directed at problems associated with the conduct of basic, applied, and clinical research projects for chronic airway diseases such as emphysema, chronic bronchitis, and asthma.

OBLIGATIONS

Fiscal Year 1981 . . . . . $2,578,312

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Harvard University, Boston, Massachusetts	HL 19170
2. Johns Hopkins University, Baltimore, Maryland	HL 14153
3. University of Arizona, Tucson, Arizona	HL 14136

PEDIATRIC PULMONARY DISEASES

Ten specialized centers in pediatric pulmonary diseases are emphasizing basic and clinical research on neonatal respiratory diseases, cystic fibrosis, and bronchiolitis.

OBLIGATIONS

Fiscal Year 1981 . . . . . $5,658,641

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Brigham and Women's Hospital, Boston, Massachusetts	HL 27372
2. Columbia University, College of Physicians and Surgeons, New York, New York	HL 14218
3. Johns Hopkins University, Baltimore, Maryland	HL 19157
4. Pennsylvania State University, University Park, Pennsylvania	HL 19190
5. University of California, San Francisco, California	HL 27356
6. University of Missouri, Columbia, Missouri	HL 19160
7. University of North Carolina, Chapel Hill, North Carolina	HL 19171
8. University of Washington, Seattle, Washington	HL 19187
9. University of Wisconsin, Madison, Wisconsin	HL 27358
10. Vanderbilt University School of Medicine, Nashville, Tennessee	HL 14214

PULMONARY VASCULAR DISEASES

Three specialized centers in pulmonary vascular diseases are focusing on basic and clinical research in pulmonary hypertension, cor pulmonale, and pulmonary edema.

OBLIGATIONS

Fiscal Year 1981 . . . . . $1,035,232

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. University of California, San Francisco, California	HL 19155
2. University of Texas, Southwestern Medical School, Dallas, Texas	HL 14187
3. Vanderbilt University, Nashville, Tennessee	HL 19153

FIBROTIC AND IMMUNOLOGIC INTERSTITIAL LUNG DISEASES

Five specialized centers are addressing basic and clinical research topics in hypersensitivity pneumonitis, pulmonary fibrosis, and noninfectious granulomatosis, especially sarcoidosis.

OBLIGATIONS

Fiscal Year 1981 . . . . . $3,525,290

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Medical College of Wisconsin, Milwaukee, Wisconsin	HL 15389
2. National Jewish Hospital and Research Center, Denver, Colorado	HL 27353
3. Tulane University, New Orleans, Louisiana	HL 15092
4. University of Pennsylvania, Philadelphia, Pennsylvania	HL 15061
5. University of Vermont, Burlington, Vermont	HL 14212

ADULT RESPIRATORY FAILURE

Three specialized centers were established in FY 1978 to conduct studies on biochemical, immunologic, and physiologic mechanisms of acute lung injury and repair in order to improve the diagnosis, management, and prevention of adult respiratory distress syndrome.

OBLIGATIONS

Fiscal Year 1981 . . . . . $887,746

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Massachusetts General Hospital, Boston, Massachusetts	HL 23591
2. University of California, San Diego, La Jolla, California	HL 23584
3. University of Texas, San Antonio, Texas	HL 23578

THROMBOSIS

Four specialized centers involved with blood diseases are emphasizing research in defining the pathogenic mechanisms of human thrombotic disease and methods for its diagnosis and treatment.

OBLIGATIONS

Fiscal Year 1981 . . . . . $5,218,941

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Cornell University Medical School, New York, New York	HL 18828
2. Temple University School of Medicine, Philadelphia, Pennsylvania	HL 14217
3. University of North Carolina, Chapel Hill, North Carolina	HL 26309
4. Washington University, St. Louis, Missouri	HL 14147

National Research and Demonstration Centers, Program Initiated in Fiscal Year 1975

These centers facilitate and expedite the translation of basic research findings to practical patient care in local communities across the nation.

OBLIGATIONS

Fiscal Year 1981 . . . . . $6,047,310

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Baylor College of Medicine, Houston, Texas (Heart and Vascular Diseases)	HL 17269
2. Puget Sound Blood Center, Seattle, Washington (Blood Resources)	HL 17265
3. University of Vermont, Burlington, Vermont (Lung Diseases)	HL 17292

Comprehensive Sickle Cell Centers, Program Initiated in Fiscal Year 1972

To bridge the gap between research and service, Comprehensive Sickle Cell Centers combine basic and clinical research, clinical trials and application, training, and community service projects.

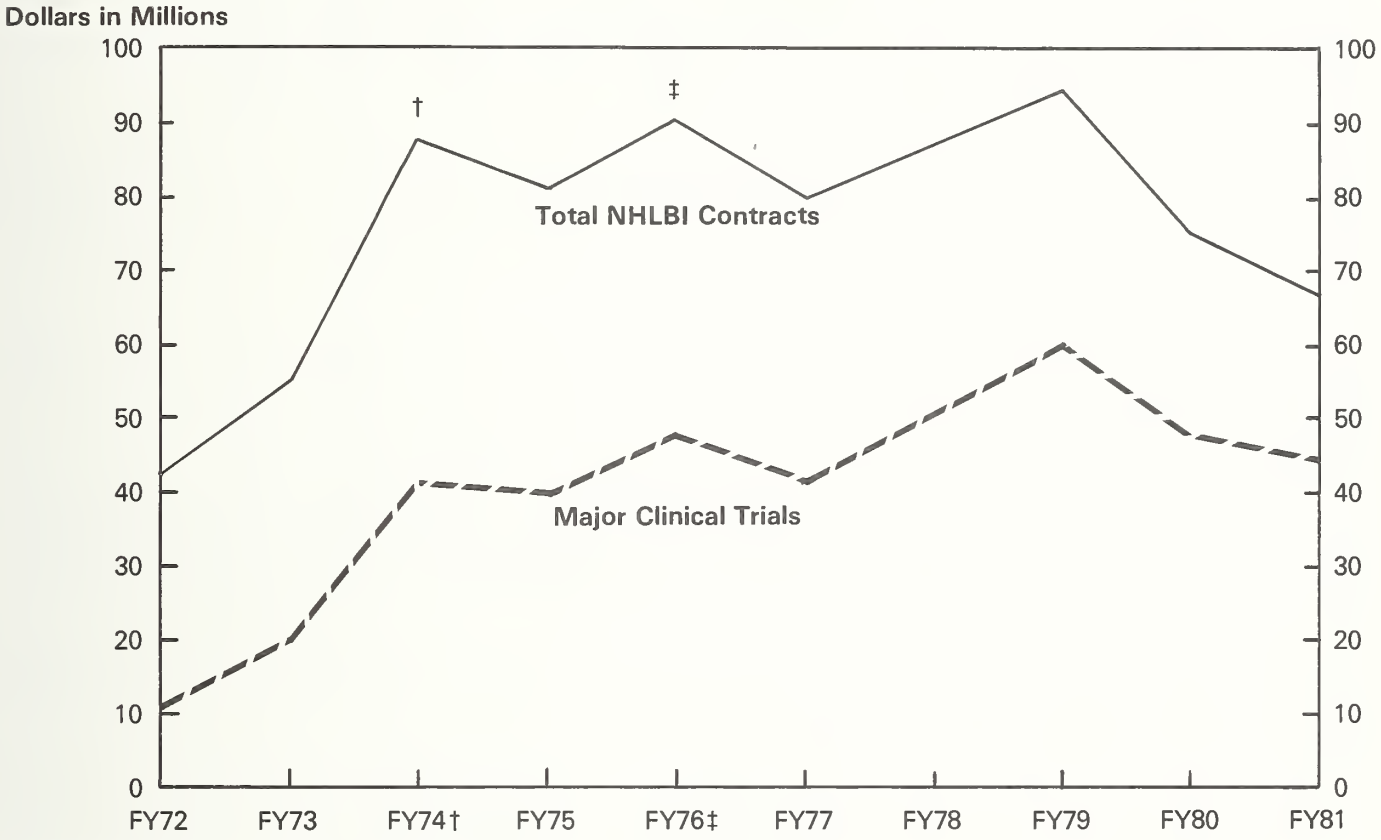
OBLIGATIONS

Fiscal Year 1981 . . . . . $10,626,821

CURRENT ACTIVE ORGANIZATIONS	GRANT NUMBERS
1. Boston University Hospital, Boston, Massachusetts	HL 15157
2. Charles R. Drew Medical School, Los Angeles, California	HL 23282
3. Children's Hospital, Cincinnati, Ohio	HL 15996
4. Howard University College of Medicine, Washington, D.C.	HL 15160
5. Medical College of Georgia, Augusta, Georgia	HL 15158
6. University of California, San Francisco, California	HL 20985
7. University of Chicago, Chicago, Illinois	HL 16005
8. University of Illinois, Chicago, Illinois	HL 15168
9. University of Southern California School of Medicine, Los Angeles, California	HL 15162
10. Wayne State University, Detroit, Michigan	HL 16008

11. Research and Development Contracts

NHLBI Research and Development Contract* Obligations, Fiscal Years 1972–1981 (Showing Funding of Clinical Trials)



* Excludes Intramural and DOPM Contracts.

† Reflects release of fiscal year 1973 impounded funds.

‡ Includes Transition Quarter Obligations.

NHLBI Research and Development Contracts* (Dollars in Thousands)

	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976†	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Heart	$30,510	$40,877	$64,618	$59,109	$71,217‡	$63,128	$73,238	$78,493	$66,941	$60,517
Lung	1,585	3,000	6,699	9,383	7,781	8,463	5,555	6,264	4,818	3,388
Blood	9,805	11,543	17,352	12,430	12,999‡	8,436	9,938	8,368	6,232	4,657
Total, Research and Development	**$41,900**	**$55,420**	**$88,669**	**$80,922**	**$91,997**	**$80,027**	**$88,731**	**$93,125**	**$77,991**	**$68,562**

* Excludes Intramural and DOPM contracts.

† Includes Transition Quarter Obligations.

‡ Biomaterials moved from DBDR to DHVD.

History of Major NHLBI Clinical Trials (Dollars in Thousands)

	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976*	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Heart and Vascular Diseases										
Hypertension Detection and Follow-up Program	$ 3,971	$ 5,699	$11,049	$ 5,673	$12,645	$10,351	$ 7,846	$ 4,034	$ 3,431	$ 1,284
Lipid Research Clinics	5,380	8,511	16,925	13,512	17,327	14,271	10,528	21,056	15,493	16,248
Multiple Risk Factor Intervention Trial	3,268	7,105	15,381	12,499	14,512	9,042	16,025	12,625	9,402	10,989
Coronary Artery Surgery Study	—	97	880	3,201	873	2,846	4,590	1,784	4,444	2,401
Aspirin Myocardial Infarction Study	—	—	—	4,510	3,122	1,957	3,114	3,784	372	—
Beta-Blocker Heart Attack Trial	—	—	—	—	—	545	3,722	5,985	3,847	3,887
Multicenter Investigation of Limitation of Infarct Size	—	—	—	—	—	—	3,323	2,813	2,685	3,490
Subtotal, Heart and Vascular Diseases	12,619	21,412	44,235	39,395	48,479	39,012	49,148	52,081	39,674	38,299
Lung Diseases										
Neonatal Respiratory Distress Syndrome	—	—	—	—	145	1,743	347	1,487	746	454
Nocturnal Oxygen Therapy	—	—	—	—	118	1,331	914	1,243	371	—
Clinical Study of Intermittent Positive Pressure Breathing	—	—	—	—	—	170	1,624	1,358	1,543	2,024
Subtotal, Lung Diseases	—	—	—	—	263	3,244	2,855	4,088	2,660	2,478
Blood Diseases and Resources										
Factor VIII	—	—	—	1,274	44	751	401	381	0	0
Granulocyte Studies	—	—	—	—	302	443	355	535	0	0
Clinical Course of Sickle Cell Disease	—	—	—	—	—	482	953	4,583	3,910	3,394
Subtotal, Blood Diseases and Resources	—	—	—	1,274	346	1,676	1,700	5,499	3,910	3,394
Total, NHLBI	**$12,619**	**$21,412**	**$44,235**	**$40,669**	**$49,088**	**$43,932**	**$53,712**	**$61,668**	**$46,244**	**$44,171**

* Includes Transition Quarter.

Major NHLBI Clinical Trials: Summary by Division

	TOTAL OBLIGATIONS PRIOR TO FY 1981	TOTAL FY 1981 OBLIGATIONS	TOTAL OBLIGATIONS TO DATE
Division of Heart and Vascular Diseases			
Aspirin Myocardial Infarction Study	$ 16,859,062	$ 0	$ 16,859,062
Beta-Blocker Heart Attack Trial	14,098,633	3,886,674	17,985,327
Coronary Artery Surgery Study	18,714,639	2,400,754	21,115,393
Hypertension Detection and Follow-up Program	66,890,877	1,284,105	68,174,982
Lipid Research Clinics	126,144,589	16,248,385	142,392,974
Multicenter Investigation of Limitation of Infarct Size	9,078,848	3,489,993	12,568,841
Multiple Risk Factor Intervention Trial	99,859,176	10,988,989	110,848,165
Subtotal, DHVD	351,645,824	38,298,920	389,944,744
Division of Lung Diseases			
Clinical Study of Intermittent Positive Pressure Breathing	4,695,353	2,023,622	6,718,975
Neonatal Respiratory Distress Syndrome	4,438,366	454,091	4,892,457
Nocturnal Oxygen Therapy	3,977,382	0	3,977,382
Subtotal, DLD	13,111,101	2,477,713	15,588,814
Division of Blood Diseases and Resources			
Clinical Course of Sickle Cell Disease	9,927,614	3,393,810	13,821,424
Factor VIII Study	2,852,516	0	2,852,516
Granulocyte Studies	1,635,142	0	1,635,142
Subtotal, DBDR	14,415,272	3,393,810	17,809,082
Total, NHLBI	**$379,172,197**	**$44,170,443**	**$423,342,640**

Aspirin Myocardial Infarction Study (AMIS): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1975

This study will determine whether administration of aspirin to persons who have had at least one documented heart attack will result in a significant reduction in cardiovascular morbidity and mortality.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 0
Fiscal Years 1975–1980	$16,859,062
Total Funding to Date	$16,859,062

CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. Boston City Hospital, Boston, Massachusetts — HV-5-2937
2. Cornell University, New York, New York — HV-5-2931
3. Emory University, Atlanta, Georgia — HV-5-2917
4. Evanston Hospital, Evanston, Illinois — HV-5-2935
5. Geisinger Medical Center, Danville, Pennsylvania — HV-5-2920
6. Greater Baltimore Medical Center, Baltimore, Maryland — HV-5-2932
7. Henry Ford Hospital, Detroit, Michigan — HV-5-2925
8. Lankenau Hospital, Philadelphia, Pennsylvania — HV-5-2938
9. Long Island Jewish-Hillside Hospital, New Hyde Park, New York — HV-5-2915
10. Medical College of Virginia, Richmond, Virginia — HV-5-2914
11. Mt. Sinai Hospital, Minneapolis, Minnesota — HV-5-2926
12. Mt. Sinai Medical Center, Miami Beach, Florida — HV-5-2933
13. Northwestern University, Chicago, Illinois — HV-5-2929
14. Ogden Research Foundation, Ogden, Utah — HV-5-2918
15. Pacific Health Research Foundation, Honolulu, Hawaii — HV-5-2936
16. Palo Alto Medical Research Foundation, Palo Alto, California — HV-5-2911
17. Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois — HV-5-2919
18. Rutgers Medical-CMDNJ, Piscataway, New Jersey — HV-5-2924
19. St. Joseph's Hospital, Chicago, Illinois — HV-5-2927
20. Salt Lake Clinic, Salt Lake City, Utah — HV-5-2923
21. Santa Rosa Medical Center, San Antonio, Texas — HV-5-2921
22. United States Public Health Service Hospital, San Francisco, California — HV-5-0029
23. University of California, Davis, California — HV-5-2916
24. University of Cincinnati, Cincinnati, Ohio — HV-5-2930
25. University of Miami, Miami, Florida — HV-5-2928
26. University of Michigan, Ann Arbor, Michigan — HV-5-2913
27. University of Mississippi, Jackson, Mississippi — HV-5-2912
28. University of Puerto Rico, San Juan, Puerto Rico — HV-5-2910
29. University of Southern California, Los Angeles, California — HV-5-2934
30. University of Washington, Seattle, Washington — HV-5-2922
31. Coordinating Center: University of Maryland, Baltimore, Maryland — HV-5-2901
32. ECG Reading Center: George Washington University, Washington, D.C. — HV-5-2941
33. Central Laboratory: Centers for Disease Control, Atlanta, Georgia — HV-5-0019

Beta-Blocker Heart Attack Trial (BHAT): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1977

This trial is designed to determine whether or not the regular administration of propranolol (a beta-blocking agent) to people who have had at least one documented heart attack will result in a significant reduction in mortality over a three-year period.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 3,886,694
Fiscal Years 1977–1980	$14,098,633
Total Funding to Date	$17,985,327

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Anthropometrics Heart Clinic, Haddonfield, New Jersey	HV-9-2902
2. Baylor College of Medicine, Houston, Texas	HV-8-2900
3. Boston University School of Medicine, Boston, Massachusetts	HV-7-2951
4. Dartmouth Medical School, Hanover, New Hampshire	HV-7-2953
5. Emory University, Atlanta, Georgia	HV-8-2902
6. Evanston Hospital, Evanston, Illinois	HV-7-2955
7. Geisinger Medical Center, Danville, Pennsylvania	HV-8-2903
8. Greater Baltimore Medical Center, Baltimore, Maryland	HV-8-2904
9. Henry Ford Hospital, Detroit, Michigan	HV-7-2957
10. Kaiser Foundation Hospitals, Portland, Oregon	HV-8-2905
11. Lankenau Hospital, Philadelphia, Pennsylvania	HV-7-2958
12. Long Island Jewish-Hillside Medical Center, New Hyde Park, New York	HV-7-2959
13. Maimonides Medical Center, Brooklyn, New York	HV-7-2960
14. Medical College of Virginia, Richmond, Virginia	HV-8-2906
15. Medical College of South Carolina, Charleston, South Carolina	HV-8-2909
16. Miami Heart Institute, Miami, Florida	HV-8-2907
17. Montreal Heart Institute, Montreal, Quebec, Canada	HV-8-2910
18. Mt. Sinai Hospital, Minneapolis, Minnesota	HV-7-2961
19. Northwestern University Medical School, Chicago, Illinois	HV-7-2963
20. Overlook Hospital, Summit, New Jersey	HV-7-2964
21. Pacific Health Research Institute, Honolulu, Hawaii	HV-7-2956
22. Providence Medical Center, Portland, Oregon	HV-7-2965
23. Rhode Island Hospital, Providence, Rhode Island	HV-8-2908
24. Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois	HV-7-2967
25. Rutgers Medical School, Raritan Valley Hospital, Piscataway, New Jersey	HV-7-2968
26. Salt Lake Clinic Research Foundation, Salt Lake City, Utah	HV-7-2969
27. State University of New York, Buffalo, New York	HV-7-2952
28. University of California, Davis, California	HV-7-2954
29. University of California, San Francisco, California	HV-8-2901
30. University of Rochester School of Medicine, Rochester, New York	HV-7-2966
31. University of Southern California, Los Angeles, California	HV-7-2970
32. Veterans Administration Hospital, Little Rock, Arkansas	HV-8-0044
33. Veterans Administration Hospital, West Roxbury, Massachusetts	HV-8-0011
34. Central Laboratory: Bio-Science Laboratories, Van Nuys, California	HV-7-2950
35. Coordinating Center: University of Texas, Houston, Texas	HV-7-2948
36. ECG Center: University of Minnesota, Minneapolis, Minnesota	HV-7-2949

Coronary Artery Surgery Study (CASS): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1973

The Coronary Artery Surgery Study will evaluate the efficacy of coronary artery bypass surgery and its potential therapeutic effect in reducing morbidity and mortality in coronary artery disease.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 2,400,754
Fiscal Years 1973–1980	$18,714,639
Total Funding to Date	$21,115,393

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Albany Medical College, Albany, New York	HV-6-2921
2. Boston University Medical Center, Boston, Massachusetts	HV-6-2923
3. Loma Linda University, Loma Linda, California	HV-3-2975
4. Marshfield Clinic, Marshfield, Wisconsin	HV-3-2981
5. Massachusetts General Hospital, Boston, Massachusetts	HV-3-2985
6. Mayo Clinic, Rochester, Minnesota	HV-3-2984
7. Medical College of Wisconsin, Milwaukee, Wisconsin	HV-3-2982
8. Miami Heart Institute, Miami, Florida	HV-3-2979
9. Montreal Heart Institute, Montreal, Quebec, Canada	HV-3-2983
10. New York University, New York, New York	HV-3-2976
11. St. Louis University, St. Louis, Missouri	HV-3-2980
12. St. Luke's Hospital Center, New York, New York	HV-3-2978
13. Stanford University, Stanford, California	HV-3-2974
14. University of Alabama, Birmingham, Alabama	HV-6-2922
15. Yale University, New Haven, Connecticut	HV-6-2925
16. Coordinating Center: University of Washington, Seattle, Washington	HV-3-2973

Hypertension Detection and Follow-up Program (HDFP): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1971

This program will determine, in the general population, the extent to which mortality and morbidity associated with elevated blood pressure can be reduced by systematic antihypertensive drug management.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 1,284,105
Fiscal Years 1971–1980	$66,890,877
Total Funding to Date	$68,174,982

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Albert Einstein College of Medicine, New York, New York	HV-2-2931
2. Bureau of Community Health Services, HSA, Rockville, Maryland	HV-1-0004

Hypertension Detection and Follow-Up Program (Cont.)

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
3. Cedars-Sinai Medical Center, Los Angeles, California	HV-1-2436
4. Emory University, Atlanta, Georgia	HV-2-2938
5. Evans County Health Department, Claxton, Georgia	HV-1-2434
6. Georgetown University Medical Center, Washington, D.C.	HV-7-2915
7. Michigan State University, East Lansing, Michigan	HV-2-2939
8. Mt. Sinai Hospital, Minneapolis, Minnesota	HV-2-2937
9. Northwestern University, Evanston, Illinois	HV-1-2441
10. Peter Bent Brigham Hospital, Boston, Massachusetts	HV-8-2915
11. University of Alabama Medical Center, Birmingham, Alabama	HV-1-2440
12. University of California, Davis, California	HV-2-2945
13. University of Maryland Medical School, Baltimore, Maryland	HV-1-2439
14. University of Mississippi, Jackson, Mississippi	HV-1-2437
15. University of Utah, Salt Lake City, Utah	HV-1-2435
16. Central Laboratory: Northwestern University Medical School, Evanston, Illinois	HV-3-2933
17. Coordinating Center: University of Texas School of Public Health, Houston, Texas	HV-1-2442

Lipid Research Clinics (LRC): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1971

These clinics create a climate for better diagnosis, management, and further research studies in hyperlipoproteinemia. Studies include the prevalence of abnormalities, their causes and treatment, and the effect of this treatment on premature atherosclerosis. In addition, the Coronary Primary Prevention Trial is testing the hypothesis that long-term reduction of serum cholesterol in men with elevated cholesterol will lead to a reduction in coronary heart disease.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 16,248,385
Fiscal Years 1971–1980	$126,144,589
Total Funding to Date	$142,392,974

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Baylor College of Medicine, Houston, Texas	HV-1-2156
2. Clinical Chemistry Division, Centers for Disease Control, Atlanta, Georgia	HV-0-0045
3. Consumer Nutrition Center, USDA, Hyattsville, Maryland	HV-4-0005
4. Department of Energy, Washington, D.C.	HV-0-0035
5. George Washington University School of Medicine, Washington, D.C.	HV-3-2931
6. Hadassah Medical Organization, Jerusalem, Israel	HV-5-3015
7. Johns Hopkins University, Baltimore, Maryland	HV-1-2158

Lipid Research Clinics (Cont.)

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
8. Oklahoma Medical Research Foundation, Oklahoma City, Oklahoma	HV-2-2932
9. Stanford University, Stanford, California	HV-1-2161
10. University of California, San Diego, La Jolla, California	HV-1-2160
11. University of Cincinnati, Cincinnati, Ohio	HV-2-2914
12. University of Iowa, Iowa City, Iowa	HV-2-2913
13. University of Minnesota, Minneapolis, Minnesota	HV-2-2915
14. University of Minnesota, Minneapolis, Minnesota	HV-1-2093
15. University of Toronto, Toronto, Ontario, Canada	HV-2-2917
16. University of Washington, Seattle, Washington	HV-1-2157
17. Washington University, St. Louis, Missouri	HV-2-2916
18. Central Clinical Laboratory: Bio-Science Laboratories, Van Nuys, California	HV-3-2961
19. Central Exercise Laboratory: University of Alabama, Birmingham, Alabama	HV-1-2159
20. Nutrient Composition Laboratories: USDA, Beltsville, Maryland	HV-6-0041
21. Registry and Coordinating Center: University of North Carolina, Chapel Hill, North Carolina	HV-1-2243
22. Standardization Laboratory: Centers for Disease Control, Atlanta, Georgia	HV-3-0010

Multicenter Investigation of Limitation of Infarct Size (MILIS): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1977

This study will assess the ability of two separate therapeutic interventions—propranolol and hyaluronidase—to limit the ultimate size of an acute myocardial infarction. A secondary objective is to assess the influence of these therapies upon ventricular function and morbidity following myocardial infarction.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 3,489,993
Fiscal Years 1977–1980	$ 9,078,848
Total Funding to Date	$12,568,841

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. President and Fellows of Harvard College, Cambridge, Massachusetts	HV-7-2940
2. University of Texas Health Science Center, Dallas, Texas	HV-7-2942
3. Washington University, St. Louis, Missouri	HV-7-2941
4. Data Coordinating Center: Research Triangle Institute, Research Triangle Park, North Carolina	HV-7-2979

Multiple Risk Factor Intervention Trial (MRFIT): Division of Heart and Vascular Diseases, Program Initiated in Fiscal Year 1972

This investigation will determine whether a preventive program directed at the reduction of serum cholesterol, reduction of blood pressure, and reduction or elimination of cigarette smoking among men (age group 35-37) will significantly reduce the incidence of myocardial infarction and death from coronary heart diseases.

OBLIGATIONS

Funding History:

Fiscal Year 1981	$ 10,988,989
Fiscal Years 1972–1980	$ 99,859,176
Total Funding to Date	$109,848,165

CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. American Health Foundation, New York, New York — HV-2-2983
2. Boston University, Boston, Massachusetts — HV-3-3106
3. Dade County Department of Public Health, Miami, Florida — HV-4-2933
4. Harvard University, Boston, Massachusetts — HV-2-2979
5. Kaiser Research Foundation, Portland, Oregon — HV-3-3105
6. Lankenau Hospital, Philadelphia, Pennsylvania — HV-3-3110
7. New Jersey School of Medicine, Newark, New Jersey — HV-3-3104
8. Northwestern University, Chicago, Illinois — HV-2-2978
9. Pacific Medical Center, San Francisco, California — HV-2-2981
10. Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois — HV-4-2930
11. Rutgers Medical School, Piscataway, New Jersey — HV-4-2929
12. St. Louis Heart Association, St. Louis, Missouri — HV-2-2982
13. University of Alabama, Birmingham, Alabama — HV-3-3107
14. University of California, Davis, California — HV-2-2977
15. University of Maryland, Baltimore, Maryland — HV-2-2980
16. University of Minnesota, Minneapolis, Minnesota — HV-2-2976
17. University of Pittsburgh, Pittsburgh, Pennsylvania — HV-3-3109
18. University of South Carolina, Columbia, South Carolina — HV-4-2932
19. University of Southern California, Los Angeles, California — HV-4-2931
20. Wright State University, Dayton, Ohio — HV-3-3108
21. Central Laboratory: Institute of Medical Sciences, Pacific Medical Center, San Francisco, California — HV-3-3101
22. ECG Laboratory: Dalhousie University, Halifax, Nova Scotia, Canada — HV-4-2911
23. Standardization Laboratory: Centers for Disease Control, Atlanta, Georgia — HV-4-0016

Clinical Study of Intermittent Positive Pressure Breathing (IPPB): Division of Lung Diseases, Program Initiated in Fiscal Year 1977

IPPB is a collaborative clinical trial to evaluate the effects of long-term intermittent positive pressure breathing treatment when used as an adjunct to the overall care of ambulatory patients with chronic obstructive lung disease.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$2,023,622
Fiscal Years 1977–1980	$4,695,353
Total Funding to Date	$6,718,975

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Baylor College of Medicine, Houston, Texas	HR-4-2905
2. Loma Linda University, Loma Linda, California	HR-7-2904
3. University of California, San Francisco, California	HR-4-2906
4. University of Manitoba, Winnipeg, Manitoba, Canada	HR-7-2902
5. University of Oklahoma, Oklahoma City, Oklahoma	HR-7-2903
6. Coordinating Center: George Washington University, Washington, D.C.	HR-7-2901

Nocturnal Oxygen Therapy: Division of Lung Diseases, Program Initiated in Fiscal Year 1976

This trial compares nocturnal (12 hour) oxygen therapy with continuous (24 hour) oxygen therapy and assesses the efficacy of nocturnal oxygen therapy in the treatment of chronic hypoxic lung disease. The study also assesses the major physiologic, psychologic, and social parameters for which oxygen therapy is thought to be beneficial, and the convenience and possible toxicity of both treatments.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 0
Fiscal Years 1976–1980	$3,977,382
Total Funding to Date	$3,977,382

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Henry Ford Hospital, Detroit, Michigan	HR-6-2944
2. Northwestern University, Evanston, Illinois	HR-6-2945

Nocturnal Oxygen Therapy (Cont.)

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
3. University of California, San Diego, La Jolla, California	HR-6-2946
4. University of Colorado Medical Center, Denver, Colorado	HR-6-2942
5. University of Manitoba, Winnipeg, Manitoba, Canada	HR-6-2943
6. University of Southern California, Los Angeles, California	HR-6-2947

Prevention of Neonatal Respiratory Distress Syndrome with Antenatal Steroid Administration: Division of Lung Diseases, Program Initiated in Fiscal Year 1976

This clinical trial is determining whether antenatal administration of steroids can reduce the incidence, morbidity, and mortality from neonatal respiratory distress syndrome among infants at risk and whether any sequelae in survivors can be attributed to steroid therapy.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 454,091
Fiscal Years 1976–1980	$4,438,366
Total Funding to Date	$4,892,457

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Northwestern University, Evanston, Illinois	HR-6-2950
2. University of Miami, Miami, Florida	HR-6-2951
3. University of Manitoba, Winnipeg, Manitoba, Canada	HR-6-2949
4. University of Tennessee, Knoxville, Tennessee	HR-6-2953
5. University of Wisconsin, Madison, Wisconsin	HR-6-2952
6. Coordinating Center: Research Triangle Institute, Research Triangle Park, North Carolina	HR-6-2948

Cooperative Study of Spontaneously Occurring Factor VIII Inhibitors in Patients with Hemophilia: Division of Blood Diseases and Resources, Program Initiated in Fiscal Year 1975

The purpose of this study is to obtain data on the occurrence and natural course of the inhibitor, correlate inhibitor behavior with the clinical course, and study complex inhibitors with the cooperation of a reference laboratory.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 0
Fiscal Years 1975–1980	$2,852,516
Total Funding to Date	$2,852,516

CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. Jefferson Medical College, Philadelphia, Pennsylvania — HB-5-3018
2. Memorial Hospital, Worcester, Massachusetts — HB-5-3019
3. Milton Hershey Medical School, Pennsylvania State University, Hershey, Pennsylvania — HB-5-3021
4. Mt. Sinai School of Medicine,* New York, New York — HB-5-3020
5. University of Colorado Medical Center, Denver, Colorado — HB-5-3023
6. University of Minnesota, St. Paul, Minnesota — HB-5-3022
7. University of North Carolina, Chapel Hill, North Carolina — HB-5-3016
8. University of Oregon, Portland, Oregon — HB-5-3024
9. Wayne State University, Detroit, Michigan — HB-5-3025
10. Coordinating Center: Cardeza Foundation, Jefferson Medical College, Philadelphia, Pennsylvania — HB-5-3035

* In conjunction with Cornell University Medical Center, New York, New York.

Cooperative Study of the Clinical Course of Sickle Cell Disease: Division of Blood Diseases and Resources, Program Initiated in Fiscal Year 1977

This collaborative study will identify the frequency of occurrence and concurrence of health-related events in the clinical course of sickle cell disease by prospective longitudinal and cross-sectional studies in order to identify and evaluate the factors which determine the clinical course and the presence or absence of complications of sickle cell disease.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 3,393,810
Fiscal Years 1977–1980	$ 9,927,614
Total Funding to Date	$13,321,424

CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. Albert Einstein College of Medicine, Yeshiva University, Bronx, New York — HB-8-2937
2. Children's Hospital, Oakland, California — HB-7-3004

Cooperative Study of the Clinical Course of Sickle Cell Disease (Cont.)

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
3. Children's Hospital, Philadelphia, Pennsylvania	HB-7-2997
4. Duke University, Durham, North Carolina	HB-7-2993
5. George Washington University, Washington, D.C.	HB-7-2994
6. Trustees of Health and Hospitals of the City of Boston, Inc., Boston, Massachusetts	HB-7-3003
7. Howard University, Washington, D.C.	HB-7-2991
8. Jewish Hospital and Medical Center of Brooklyn, Brooklyn, New York	HB-7-3002
9. Massachusetts Institute of Technology, Cambridge, Massachusetts	HB-1-3000
10. Medical College of Georgia, Augusta, Georgia	HB-7-3000
11. Michael Reese Hospital, Chicago, Illinois	HB-7-2998
12. St. Luke's Hospital, New York, New York	HB-7-3006
13. University of Miami, Coral Gables, Florida	HB-7-2992
14. University of Mississippi, Jackson, Mississippi	HB-7-3005
15. University of Pittsburgh, Pittsburgh, Pennsylvania	HB-1-3001
16. University of Tennessee, Memphis, Tennessee	HB-7-2995
17. Washington University, St. Louis, Missouri	HB-7-3001
18. Yale University, New Haven, Connecticut	HB-7-2996
19. Coordinating Center: University of Illinois, Chicago, Illinois	HB-7-2982

Studies of Collection, Function, and Transfusion of Granulocytes: Division of Blood Diseases and Resources, Program Initiated in Fiscal Year 1976

This collaborative study will determine the efficacy of prophylactic granulocyte transfusions and the efficacy and indications for therapeutic granulocyte transfusion.

OBLIGATIONS

Funding History:	
Fiscal Year 1981	$ 0
Fiscal Years 1976–1980	$1,635,142
Total Funding to Date	$1,635,142*

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. University of California, Los Angeles, California	HB-6-2971
2. University of Iowa College of Medicine, Iowa City, Iowa	HB-6-2973
3. University of Minnesota, Minneapolis, Minnesota	HB-6-2972
4. Washington University, St. Louis, Missouri	HB-6-2970

* Represents 60 percent of actual funding; the remaining 40 percent is provided by the National Cancer Institute.

12. Training and Career Development Programs

Fiscal Year 1981 Training Obligations by Activity

	NUMBER OF AWARDS OBLIGATED	TRAINEES (FULL-TIME EQUIVALENTS)	DIRECT COST	INDIRECT COST	TOTAL COST	PERCENT OF TOTAL NHLBI TRAINING PROGRAM DOLLARS
Fellowship Programs						
Individual NRSA (F32)	212	212	$ 4,125,543	$ 0	$ 4,125,543	13.1
Senior Fellowships NRSA (F33)	10	10	298,414	0	298,414	1.0
Minority Access to Research Career Fellowships NRSA (F34)	3	3	71,613	0	71,613	0.2
Subtotal, Fellowships	225	225	4,495,570	0	4,495,570	14.3
Graduate Training Programs						
Institutional NRSA (T32)	212	1,232	23,560,373	1,815,932	25,376,305	80.6
Minority Summer Hypertension NRSA (T32)	17	(36)*	542,437	48,419	590,856	1.9
Pulmonary Faculty Training NRSA (T17)	6	24	65,412	24,000	89,412	0.3
Off-Quarter Professional Student Training NRSA (T35)	22	(108)*	841,277	66,131	967,408	2.9
Subtotal, Training Grants	257	1,256	25,009,499	1,954,482	26,963,981	85.7
Total, Training Programs	**482**	**1,481**	**$29,505,069**	**$1,954,482**	**$31,459,551**	**100.0**

* Not included in total.

History of Training Obligations by Activity for Fiscal Years 1971-1981 (Dollars in Thousands)

	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980*	FY 1981
Fellowship Programs											
Postdoctoral and Special Fellowships (F02, F03)	$ 2,052	$ 1,310	$ 802	$ 393	$ 101	$ 20	—	—	—	—	—
Individual Research Training Fellowships ("Weinberger") (F22)	—	—	—	2,068	946	676	28	—	—	—	—
Individual NRSA (F32)	—	—	—	—	1,702	2,574	2,650	2,988	2,419	4,564	4,126
Senior Fellowships NRSA (F33)	—	—	—	—	—	—	—	—	—	288	298
Minority Access to Research Career Fellowships NRSA (F34)	—	—	—	—	—	—	—	41	77	90	72
Subtotal, Fellowships	2,052	1,310	802	2,461	2,749	3,270	2,678	3,029	2,496	4,882	4,496
Graduate Training Programs											
Graduate Training Grants (T01)	17,618	18,555	14,344	16,933	12,175	8,098	3,866	777	—	—	—
Institutional NRSA (T32)	—	—	—	—	4,685	8,793	10,363	16,969	18,265	25,380	25,376
Minority Summer Hypertension NRSA (T32)	—	—	—	—	—	—	177	333	356	583	591
Pulmonary Faculty Training NRSA (T17)	—	—	—	—	359	398	0†	84	193	464	89
Off-Quarter Professional Student Training NRSA (T35)	—	—	—	—	—	—	—	—	—	648	908
Subtotal, Training Grants	17,618	18,555	14,344	16,933	17,219	17,289	14,406	18,163	18,814	27,074	26,964
Total, Training Programs	**$19,670**	**$19,865**	**$15,146**	**$19,394**	**$19,668**	**$20,559**	**$17,084**	**$21,192**	**$21,310**	**$31,956**	**$31,460**

* Stipend increase occurred in fiscal year 1980.

† Funded from unobligated balances.

Number of Trainees by Activity (Full-Time Equivalents): Fiscal Years 1971-1981

	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Fellowship Programs											
Postdoctoral and Special Fellowships (F02, F03)	168	144	72	36	10	1	—	—	—	—	—
Individual Research Training Fellowships ("Weinberger") (F22)	—	—	—	167	56	43	2	—	—	—	—
Individual NRSA (F32)	—	—	—	—	138	193	188	215	168	238	212
Senior Fellowships NRSA (F33)	—	—	—	—	—	—	—	—	—	7	10
Minority Access to Research Career Fellowships NRSA (F34)	—	—	—	—	—	—	—	2	4	4	3
Subtotal, Fellowships	168	144	72	206	204	237	190	217	172	249	225
Graduate Training Programs											
Graduate Training Grants (T01)	1,265	1,225	1,100	1,065	690	449	233	37	—	—	—
Institutional NRSA (T32)	—	—	—	—	279	491	673	1,056	1,151	1,168	1,241
Minority Summer Hypertension NRSA (T32)	—	—	—	—	—	—	(10)*	(17)*	(28)*	(29)*	(36)*
Pulmonary Faculty Training NRSA (T17)	—	—	—	—	24	24	24	24	24	24	24
Off-Quarter Professional Student Training NRSA (T35)	—	—	—	—	—	—	—	—	—	(79)*	(108)*
Subtotal, Training Grants	1,265	1,225	1,100	1,065	993	964	930	1,117	1,175	1,192	1,265
Total, Training Programs	**1,433**	**1,369**	**1,172**	**1,268**	**1,197**	**1,201**	**1,120**	**1,334**	**1,347**	**1,441**	**1,490**

* Not included in total.

Number of Awards in NHLBI Research Career Programs

Program	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Special Emphasis Research Career Award* (K01)	—	—	—	—	4	5	7	8
Research Career Development Award (K04)	99	107	133	145	164	176	166	163
Research Career Award (K06)	25	23	21	21	21	21	21	21
Preventive Cardiology Award (K07)	—	—	—	—	—	7	11	14
Pulmonary Academic Award (K07)	24	30	34	28	32	29	28	23
Clinical Investigator Award (K08)	—	—	—	—	—	—	31	56
Pulmonary Faculty Development Award (K08)	—	—	5	13	25	19	26	24
Total	**148**	**160**	**183**	**207**	**246**	**257**	**293**	**309**

* Diabetes and heart disease.

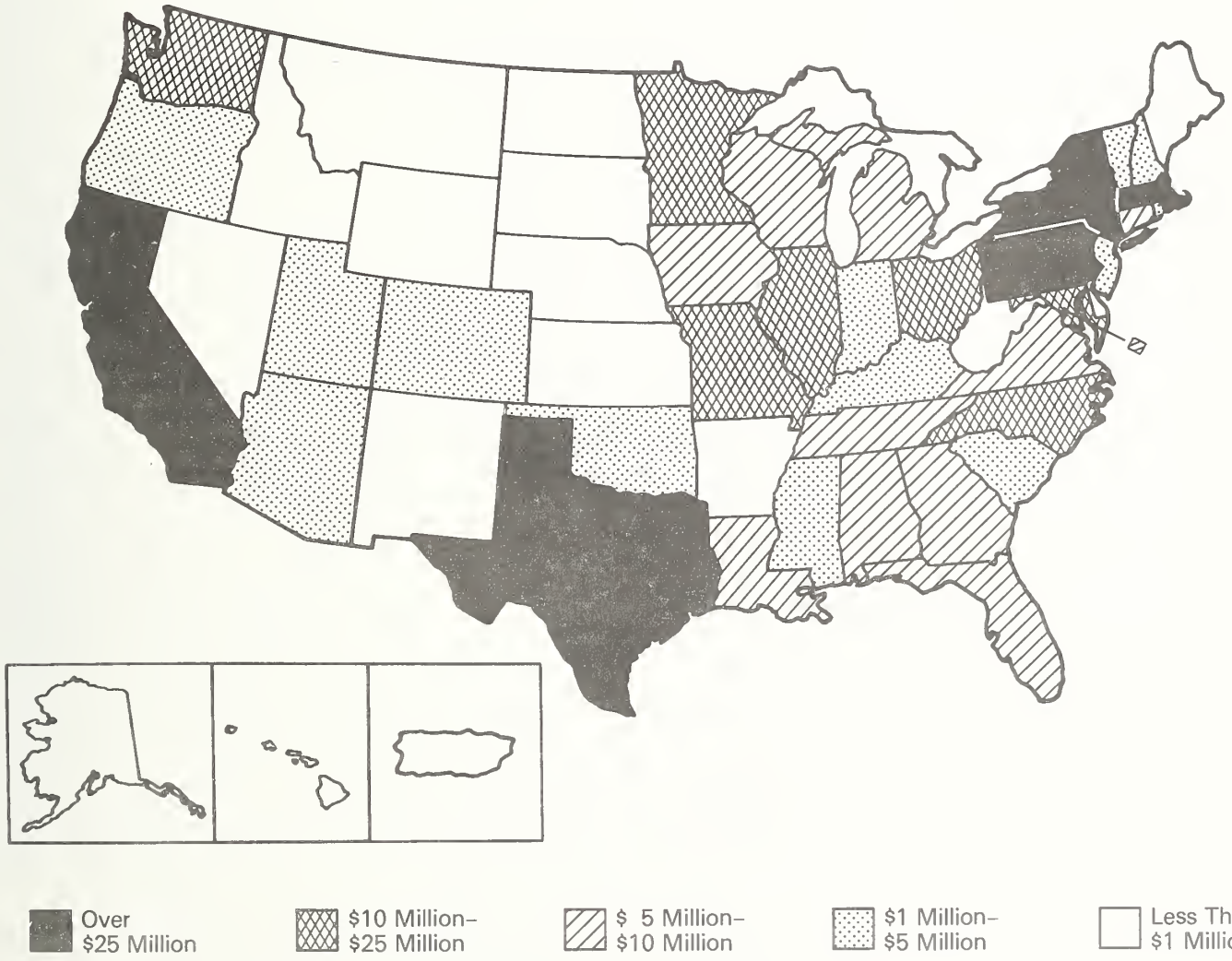
NHLBI Research Career Programs (Dollars in Thousands)

Program	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Special Emphasis Research Career Award* (K01)	—	—	—	—	161	218	314	416
Research Career Development Award (K04)	2,417	2,618	3,191	4,362	5,817	6,419	6,135	6,252
Research Career Award (K06)	762	715	659	660	668	673	682	685
Preventive Cardiology Award (K07)	—	—	—	—	—	432	797	1,121
Pulmonary Academic Award (K07)	1,052	1,445	1,556	1,085	1,369	1,210	1,221	1,032
Clinical Investigator Award (K08)	—	—	—	—	—	—	1,323	2,508
Pulmonary Faculty Development Award (K08)	—	—	128	322	640	566	876	724
Total	**$ 4,231**	**$ 4,778**	**$ 5,534**	**$ 6,429**	**$ 8,655**	**$ 9,518**	**$11,349**	**$12,739**

* Diabetes and heart disease.

13. Distribution of Grants, Contracts, and Training Funding: Fiscal Year 1981

Geographic Distribution of Obligations by State, Fiscal Year 1981



Institutional Distribution of Obligations

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Alabama								
Southern Research Institute	1	$ 78,815	1	$ 78,815	—	—	—	—
University of Alabama, Birmingham	31	7,620,100	23	5,329,165	5	$ 491,584	3	$ 1,799,351
University of South Alabama	15	706,072	14	667,403	1	38,669	—	—
Total, Alabama	**47**	**8,404,987**	**38**	**6,075,383**	**6**	**530,253**	**3**	**1,799,351**
Alaska								
University of Alaska, College	1	91,176	1	91,176	—	—	—	—
Total, Alaska	**1**	**91,176**	**1**	**91,176**	—	—	—	—
Arizona								
University of Arizona	20	3,270,741	15	2,603,154	4	178,407	1	489,180
Total, Arizona	**20**	**3,270,741**	**15**	**2,603,154**	**4**	**178,407**	**1**	**489,180**
Arkansas								
U.S. Veterans Administration Hospital	1	92,232	—	—	—	—	1	92,232
University of Arkansas Medical Sciences	5	176,621	3	134,113	2	42,508	—	—
Total, Arkansas	**6**	**268,853**	**3**	**134,113**	**2**	**42,508**	**1**	**92,232**
California								
Aerojet Liquid Rocket Company	1	4,480	—	—	—	—	1	4,480
Andros, Inc.	2	1,387,932	—	—	—	—	2	1,387,932
Bio-Science Laboratories	2	518,050	—	—	—	—	2	518,050
California Institute of Technology	3	323,736	3	323,736	—	—	—	—
California State Department of Health Services	2	277,552	2	277,552	—	—	—	—
California State Health and Welfare Agency	1	1,634,968	—	—	—	—	1	1,634,968
California State University, Fullerton	1	41,232	1	41,232	—	—	—	—
California State University, Long Beach	1	29,596	1	29,596	—	—	—	—
Cedars-Sinai Medical Center	4	1,587,974	3	1,487,302	1	100,672	—	—
Charles R. Drew Postgraduate Medical School	1	473,318	1	473,318	—	—	—	—
Children's Hospital Medical Center of Northern California	2	307,883	1	81,105	—	—	1	226,778
Children's Hospital of Los Angeles	3	286,390	3	286,390	—	—	—	—
City of Hope National Medical Center	4	510,112	4	510,112	—	—	—	—
Institute for Medical Research	2	175,458	2	175,458	—	—	—	—
Institutes of Medical Sciences	6	1,386,963	4	585,115	—	—	2	801,848
J. David Gladstone Foundation	1	58,435	1	58,435	—	—	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
California (Cont.)								
Kaiser Foundation Research Institute	2	708,000	—	—	—	—	2	708,000
La Jolla Cancer Research Foundation	2	96,507	1	77,467	1	19,040	—	—
Laboratory for Comparative Biochemistry	1	77,699	1	77,699	—	—	—	—
Loma Linda University	4	631,571	2	92,703	—	—	2	538,868
Los Angeles County Harbor–UCLA Medical Center	6	513,416	5	420,158	1	93,258	—	—
Los Angeles County–University of Southern California Medical Center	2	183,443	2	183,443	—	—	—	—
Mount Zion Hospital and Medical Center	2	370,711	2	370,711	—	—	—	—
Pacific Medical Center	2	350,629	2	350,629	—	—	—	—
Palo Alto Medical Research Foundation	3	369,456	3	369,456	—	—	—	—
Rees-Stealy Clinic Research Foundation	1	54,778	1	54,778	—	—	—	—
San Diego State University	2	80,338	2	80,338	—	—	—	—
San Francisco State University	1	34,253	1	34,253	—	—	—	—
Scripps Clinic and Research Foundation	13	2,981,449	11	2,729,719	2	251,730	—	—
SRI International	8	1,672,974	5	685,213	—	—	3	987,761
Stanford University	37	9,389,725	25	6,636,202	9	665,868	3	2,087,655
Thoratec Laboratories Corporation	2	345,816	—	—	—	—	2	345,816
University of California, Berkeley	13	2,830,149	9	2,564,662	4	265,487	—	—
University of California, Davis	22	1,978,394	16	1,238,260	2	112,248	4	627,886
University of California, Irvine	12	780,000	12	780,000	—	—	—	—
University of California, Los Angeles	49	5,519,739	40	4,892,229	8	568,133	1	59,377
University of California, San Diego	62	10,258,294	47	6,845,522	14	1,061,022	1	2,351,750
University of California, San Francisco	63	14,291,042	48	12,220,216	11	1,013,953	4	1,056,873
University of California, Santa Barbara	1	75,774	1	75,774	—	—	—	—
University of Southern California	25	3,749,229	20	2,823,367	3	171,574	2	754,288
University of the Pacific	1	302,139	1	302,139	—	—	—	—
Total, California	**372**	**66,649,604**	**283**	**48,234,289**	**56**	**4,322,985**	**33**	**14,092,330**
Colorado								
Colorado State University	4	376,677	4	376,677	—	—	—	—
National Jewish Hospital and Research Center	6	1,006,885	6	1,006,885	—	—	—	—
University of Colorado, Boulder	4	229,942	3	210,206	1	19,736	—	—
University of Colorado Health Sciences Center	18	2,298,359	14	1,908,470	4	389,889	—	—
Total, Colorado	**32**	**3,911,863**	**27**	**3,502,238**	**5**	**409,625**	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Connecticut								
Connecticut State Department of Health Services	1	750,607	—	—	—	—	1	750,607
John B. Pierce Foundation of Connecticut	4	323,847	4	323,847	—	—	—	—
University of Connecticut Health Center	18	1,941,014	16	1,800,780	2	140,234	—	—
University of Connecticut, Storrs	3	142,002	3	142,002	—	—	—	—
Yale University	40	3,790,410	27	2,946,339	11	566,100	2	277,971
Total, Connecticut	**66**	**6,947,880**	**50**	**5,212,968**	**13**	**706,334**	**3**	**1,028,578**
Delaware								
University of Delaware	2	133,613	2	133,613	—	—	—	—
Total, Delaware	**2**	**133,613**	**2**	**133,613**	—	—	—	—
District of Columbia								
American National Red Cross	7	710,057	7	710,057	—	—	—	—
Children's Hospital National Medical Center	1	45,473	1	45,473	—	—	—	—
Dynamic Programs	1	73,777	—	—	—	—	1	73,777
George Washington University	12	2,169,826	8	700,068	1	19,736	3	1,450,022
Georgetown University	10	968,521	8	877,819	1	78,502	1	12,200
Howard University	7	2,003,108	5	1,798,747	1	43,979	1	160,382
National Academy of Sciences	1	108,820	—	—	—	—	1	108,820
U.S. Environmental Protection Agency	1	10,000	—	—	—	—	1	10,000
U.S. National Aeronautics and Space Administration	1	257,462	—	—	—	—	1	257,462
U.S. Office of Personnel Management	1	4,000	—	—	—	—	1	4,000
Total, District of Columbia	**42**	**6,351,044**	**29**	**4,132,164**	**3**	**142,217**	**10**	**2,076,663**
Florida								
Dade County Health Department	1	705,483	—	—	—	—	1	705,483
Eckerd College	1	116,899	1	116,899	—	—	—	—
Miami Heart Institute	5	317,805	2	88,143	—	—	3	229,662
Mount Sinai Medical Center	4	281,776	3	182,520	1	99,256	—	—
University of Florida	21	1,508,778	18	1,456,307	3	52,471	—	—
University of Miami	26	3,658,378	20	2,926,502	4	433,463	2	298,413
University of South Florida	15	931,005	15	931,005	—	—	—	—
Total, Florida	**73**	**7,520,124**	**59**	**5,701,376**	**8**	**585,190**	**6**	**1,233,558**
Georgia								
Emory University	13	1,579,344	11	1,365,835	1	84,510	1	128,999
Evans County Health Department	2	68,409	1	48,627	—	—	1	19,782
Fort Valley State College	1	267,911	1	267,911	—	—	—	—
Georgia Institute of Technology	2	178,283	2	178,283	—	—	—	—
Medical College of Georgia	9	1,890,150	8	1,840,799	—	—	1	49,351
U.S. Centers for Disease Control	7	1,029,797	—	—	1	15,797	6	1,014,000
University of Georgia	8	495,150	8	495,150	—	—	—	—
Total, Georgia	42	5,509,044	31	4,196,605	2	100,307	9	1,212,132

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Hawaii								
Kapiolani-Children's Medical Center	1	94,916	1	94,916	—	—	—	—
Kuakini Medical Center	1	112,255	1	112,255	—	—	—	—
Pacific Health Research Institute	1	67,000	—	—	—	—	1	67,000
Queen's Medical Center	2	192,300	2	192,300	—	—	—	—
University of Hawaii, Manoa	4	162,271	4	162,271	—	—	—	—
Total, Hawaii	**9**	**628,742**	**8**	**561,742**	—	—	**1**	**67,000**
Illinois								
Chicago Heart Association	1	394,073	1	394,073	—	—	—	—
Children's Memorial Hospital	2	136,142	2	136,142	—	—	—	—
Evanston Hospital	1	84,709	—	—	—	—	1	84,709
Hektoen Institute for Medical Research	1	91,374	1	91,374	—	—	—	—
Loyola University Medical Center	5	314,230	5	314,230	—	—	—	—
Michael Reese Hospital and Medical Center	6	482,074	5	413,430	—	—	1	68,644
Northwestern University	34	3,058,106	27	2,423,997	2	96,723	5	537,386
Rush University	7	1,303,755	4	535,738	1	94,628	2	673,389
Rush-Presbyterian-St. Luke's Medical Center	4	253,921	4	253,921	—	—	—	—
Southern Illinois University School of Medicine	2	100,330	2	100,330	—	—	—	—
University of Chicago	24	7,130,439	21	6,555,616	3	574,823	—	—
University of Chicago Medical School	2	89,613	2	89,613	—	—	—	—
University of Illinois, Chicago Circle	1	64,552	1	64,552	—	—	—	—
University of Illinois, Medical Center	17	3,646,134	13	2,329,557	2	72,501	2	1,244,076
University of Illinois, Peoria School of Medicine	1	37,817	1	37,817	—	—	—	—
University of Illinois, Urbana-Champaign	12	738,085	11	719,705	1	18,380	—	—
Total, Illinois	**120**	**17,925,354**	**100**	**14,460,095**	**9**	**857,055**	**11**	**2,608,204**
Indiana								
Indiana University–Purdue University, Indianapolis	22	2,259,645	19	2,041,036	2	166,703	1	51,906
Indiana University, Bloomington	6	471,334	6	471,334	—	—	—	—
Indianapolis Center for Advanced Research	1	57,057	1	57,057	—	—	—	—
Purdue University, West Lafayette	5	238,025	5	238,025	—	—	—	—
University of Notre Dame	3	286,445	3	286,445	—	—	—	—
Total, Indiana	**37**	**3,312,506**	**34**	**3,093,897**	**2**	**166,703**	**1**	**51,906**
Iowa								
Iowa State University of Science and Technology	1	57,812	1	57,812	—	—	—	—
University of Iowa	53	6,155,044	43	5,408,571	9	696,989	1	49,484
Total, Iowa	**54**	**6,212,856**	**44**	**5,466,383**	**9**	**696,989**	**1**	**49,484**

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Kansas								
Kansas State University	2	90,930	2	90,930	—	—	—	—
University of Kansas College of Health Sciences and Hospital	5	265,438	5	265,438	—	—	—	—
University of Kansas, Lawrence	3	147,276	3	147,276	—	—	—	—
Total, Kansas	**10**	**503,644**	**10**	**503,644**	—	—	—	—
Kentucky								
University of Kentucky	14	996,311	13	965,287	1	31,024	—	—
University of Louisville	6	343,226	6	343,226	—	—	—	—
Total, Kentucky	**20**	**1,339,537**	**19**	**1,308,513**	**1**	**31,024**	—	—
Louisiana								
Alton Ochsner Medical Foundation	4	248,146	4	248,146	—	—	—	—
Louisiana State University Agricultural and Mechanical College, Baton Rouge	3	257,554	3	257,554	—	—	—	—
Louisiana State University Medical Center, New Orleans	15	3,270,036	12	3,027,406	2	179,026	1	63,604
Louisiana State University Medical Center, Shreveport	2	112,041	2	112,041	—	—	—	—
Louisiana Technological University	1	44,768	1	44,768	—	—	—	—
Tulane University of Louisiana	10	1,367,656	8	1,160,286	2	207,370	—	—
Total, Louisiana	**35**	**5,300,201**	**30**	**4,850,201**	**4**	**386,396**	**1**	**63,604**
Maine								
Maine Department of Human Services	1	46,378	—	—	—	—	1	46,378
Maine Medical Center	2	63,846	2	63,846	—	—	—	—
Total, Maine	**3**	**110,224**	**2**	**63,846**	—	—	**1**	**46,378**
Maryland								
American Type Culture Collection	1	101,397	1	101,397	—	—	—	—
Carnegie Institution of Washington, D.C.	1	19,736	—	—	1	19,736	—	—
Greater Baltimore Medical Center	1	80,814	—	—	—	—	1	80,814
Johns Hopkins University	62	10,310,678	51	8,245,066	10	908,382	1	1,157,230
Litton Bionetics	1	848,035	—	—	—	—	1	848,035
Maryland State Department of Health and Mental Hygiene	1	1,578,897	—	—	—	—	1	1,578,897
U.S. Agricultural Research Center	1	200,000	—	—	—	—	1	200,000
U.S. Consumer Nutrition Center	1	65,000	—	—	—	—	1	65,000
U.S. Department of Energy—Germantown	1	55,940	—	—	—	—	1	55,940
U.S. Health Services Administration	1	250,000	—	—	—	—	1	250,000
U.S. National Institutes of Health	10	160,350	—	—	10	160,350	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Maryland (Cont.)								
U.S. PHS Public Advisory Groups	4	174,007	4	174,007	—	—	—	—
U.S. Uniformed Services University of Health Sciences	3	88,404	2	62,459	1	25,945	—	—
University of Maryland, Baltimore	11	1,567,561	8	879,858	—	—	3	687,703
University of Maryland, College Park	1	26,124	—	—	1	26,124	—	—
Total, Maryland	**100**	**15,526,943**	**66**	**9,462,787**	**23**	**1,140,537**	**11**	**4,923,619**
Massachusetts								
Beth Israel Hospital	10	911,172	7	846,576	3	64,596	—	—
Boston Biomedical Research Institute	11	1,135,109	9	1,053,904	2	81,205	—	—
Boston City Hospital	3	1,016,448	3	1,016,448	—	—	—	—
Boston Hospital for Women	5	322,941	4	300,049	1	22,892	—	—
Boston University	45	8,895,899	34	7,552,684	9	806,945	2	536,270
Brandeis University	2	88,980	1	70,600	1	18,380	—	—
Brigham and Women's Hospital	1	572,496	1	572,496	—	—	—	—
Cambridge Collaborative Research Foundation	1	101,400	1	101,400	—	—	—	—
Center for Blood Research	4	395,554	4	395,554	—	—	—	—
Children's Hospital Medical Center	26	3,856,265	22	3,056,039	3	308,916	1	491,310
Everett Research Laboratory	1	1,032,559	—	—	—	—	1	1,032,559
Faulkner Hospital	1	72,549	1	72,549	—	—	—	—
Harvard University	64	11,987,963	47	9,236,321	15	985,664	2	1,765,978
Massachusetts General Hospital	31	4,437,132	26	3,880,169	4	401,614	1	155,349
Massachusetts Hospital Association	1	22,040	—	—	1	22,040	—	—
Massachusetts Institute of Technology	11	1,825,878	10	1,653,707	—	—	1	174,171
New England Deaconess Hospital	1	95,965	—	—	—	—	1	95,965
New England Medical Center Hospital	10	1,100,306	8	936,955	2	163,351	—	—
Northeast Regional Red Cross	1	10,000	1	10,000	—	—	—	—
Northeastern University	1	68,479	1	68,479	—	—	—	—
Peter Bent Brigham Hospital	45	4,461,172	35	3,835,541	9	611,631	1	14,000
Robert Breck Brigham Hospital	4	699,507	4	699,507	—	—	—	—
Sidney Farber Cancer Institute	2	211,609	2	211,609	—	—	—	—
St. Elizabeth's Hospital of Boston	6	557,523	4	380,808	1	10,325	1	166,390
Thermo Electron Corporation	4	1,698,389	—	—	—	—	4	1,698,389
Tufts University	5	478,530	5	478,530	—	—	—	—
U.S. Veterans Administration Hospital	2	118,917	—	—	—	—	2	118,917
University Hospital	9	1,171,147	7	712,732	—	—	2	458,415
University of Massachusetts, Amherst	1	57,169	1	57,169	—	—	—	—
University of Massachusetts Medical School	9	523,595	9	523,595	—	—	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Massachusetts (Cont.)								
Worcester Foundation for Experimental Biology	1	76,164	1	76,164	—	—	—	—
Total, Massachusetts	**318**	**48,004,857**	**248**	**37,799,585**	**51**	**3,497,559**	**19**	**6,707,713**
Michigan								
Detroit Health Department	1	358,990	1	358,990	—	—	—	—
Henry Ford Hospital	12	977,481	10	818,745	1	19,736	1	139,000
Lafayette Clinic	1	71,080	1	71,080	—	—	—	—
Michigan State University	25	1,632,675	19	1,296,926	6	335,749	—	—
Oakland University	1	46,497	1	46,497	—	—	—	—
Sinai Hospital of Detroit	2	202,838	1	99,051	—	—	1	103,787
University of Michigan, Ann Arbor	34	3,443,105	26	3,114,708	6	293,048	2	35,349
Wayne State University	16	2,094,270	15	2,087,549	1	6,721	—	—
Total, Michigan	**92**	**8,826,936**	**74**	**7,893,546**	**14**	**655,254**	**4**	**278,136**
Minnesota								
Mayo Foundation	35	4,450,992	25	3,738,992	8	526,942	2	185,058
Mount Sinai Hospital	2	257,985	1	197,595	—	—	1	60,390
United Hospitals	1	140,197	1	140,197	—	—	—	—
University of Minnesota, Duluth	1	40,670	1	40,670	—	—	—	—
University of Minnesota, Minneapolis–St. Paul	82	17,488,880	61	14,403,758	18	1,099,592	3	1,985,530
Total, Minnesota	**121**	**22,378,724**	**89**	**18,521,212**	**26**	**1,626,534**	**6**	**2,230,978**
Mississippi								
Central Mississippi, Inc.	1	448,351	1	448,351	—	—	—	—
University of Mississippi Medical Center	20	3,138,370	15	2,953,744	4	176,284	1	8,342
University of Southern Mississippi	1	75,752	1	75,752	—	—	—	—
Total, Mississippi	**22**	**3,662,473**	**17**	**3,477,847**	**4**	**176,284**	**1**	**8,342**
Missouri								
Jewish Hospital of St. Louis	5	373,832	5	373,832	—	—	—	—
St. Louis Heart Association	1	481,937	—	—	—	—	1	481,937
St. Louis University	13	1,640,366	9	874,022	2	324,464	2	441,880
University of Missouri, Columbia	24	1,743,498	18	1,470,534	6	272,964	—	—
University of Missouri, Rolla	1	99,860	1	99,860	—	—	—	—
Washington University	42	9,739,050	31	6,558,867	7	851,616	4	2,328,567
Total, Missouri	**86**	**14,078,543**	**64**	**9,377,115**	**15**	**1,449,044**	**7**	**3,252,384**
Nebraska								
Creighton University	4	256,221	4	256,221	—	—	—	—
University of Nebraska, Lincoln	2	151,158	2	151,158	—	—	—	—
University of Nebraska Medical Center	9	524,850	8	505,810	1	19,040	—	—
Total, Nebraska	**15**	**932,229**	**14**	**913,189**	**1**	**19,040**	**—**	**—**
New Hampshire								
Dartmouth College	16	1,177,902	13	1,041,239	2	123,955	1	12,708
Total, New Hampshire	**16**	**1,177,902**	**13**	**1,041,239**	**2**	**123,955**	**1**	**12,708**

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
New Jersey								
Anthropometrics Heart Clinic	1	48,596	—	—	—	—	1	48,596
College of Medicine and Dentistry of New Jersey	14	1,797,998	11	1,174,140	2	109,387	1	514,471
Newark Beth Israel Medical Center	2	107,041	2	107,041	—	—	—	—
Overlook Hospital	1	80,790	—	—	—	—	1	80,790
Princeton University	3	202,658	2	183,618	1	19,040	—	—
Rutgers Medical School	7	1,162,729	5	370,749	—	—	2	791,980
Rutgers University, New Brunswick	1	66,982	1	66,982	—	—	—	—
Total, New Jersey	**29**	**3,466,794**	**21**	**1,902,530**	**3**	**128,427**	**5**	**1,435,837**
New Mexico								
Lovelace Medical Center	1	61,186	1	61,186	—	—	—	—
Lovelace-Bataan Health Program	1	114,545	1	114,545	—	—	—	—
University of New Mexico, Albuquerque	8	431,860	7	411,535	1	20,325	—	—
Total, New Mexico	**10**	**607,591**	**9**	**587,266**	**1**	**20,325**	—	—
New York								
Albany Medical College	13	1,844,871	10	1,521,235	2	213,712	1	109,924
American Health Foundation	2	816,203	1	340,447	—	—	1	475,756
Associated Universities, Inc.—Brookhaven National Laboratory	3	333,251	3	333,251	—	—	—	—
Beth Israel Medical Center	1	200,189	1	200,189	—	—	—	—
Brookdale Hospital Medical Center	1	67,575	1	67,575	—	—	—	—
Children's Hospital	2	223,303	2	223,303	—	—	—	—
City College of New York	2	257,857	2	257,857	—	—	—	—
Cold Spring Harbor Laboratory	1	58,644	1	58,644	—	—	—	—
Columbia University	62	13,038,310	52	11,864,847	9	1,123,463	1	50,000
Cornell University, Ithaca	15	2,235,323	10	2,112,286	5	123,037	—	—
Cornell University Medical Center	21	5,172,464	17	4,684,719	4	487,745	—	—
CUNY Graduate School and University Center	1	124,038	1	124,038	—	—	—	—
Downstate Medical Center	16	1,113,954	15	1,048,830	1	65,124	—	—
Health Insurance Plan of Greater New York	1	93,699	1	93,699	—	—	—	—
Hunter College	1	40,604	1	40,604	—	—	—	—
Jewish Hospital and Medical Center of Brooklyn	1	636,393	—	—	—	—	1	636,393
Long Island Jewish-Hillside Medical Center	1	65,000	—	—	—	—	1	65,000
Long Island Research Institute	1	46,289	1	46,289	—	—	—	—
Maimonides Medical Center	1	66,272	—	—	—	—	1	66,272
Mary Imogene Bassett Hospital	4	253,322	4	253,322	—	—	—	—
Masonic Memorial Foundation for Medical Research and Human Welfare Labs	3	286,068	2	267,688	1	18,380	—	—
Medical Foundation of Buffalo	1	4,182	1	4,182	—	—	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
New York (Cont.)								
Montefiore Hospital and Medical Center	11	1,719,091	10	1,639,209	1	79,882	—	—
Mount Sinai School of Medicine	19	1,447,730	18	1,376,320	1	71,410	—	—
New York Academy of Sciences	1	6,432	1	6,432	—	—	—	—
New York Blood Center	9	2,019,940	7	1,718,784	1	113,767	1	187,389
New York Medical College	20	2,029,134	19	2,007,094	1	22,040	—	—
New York State Department of Health	6	576,609	5	562,215	1	14,394	—	—
New York State Office of Mental Health	1	61,376	1	61,376	—	—	—	—
New York University	20	2,421,771	18	2,124,723	2	154,700	1	142,348
Public Health Research Institute of the City of New York	1	76,421	1	76,421	—	—	—	—
Queens College	1	72,151	1	72,151	—	—	—	—
Rensselaer Polytechnic Institute	2	166,409	2	166,409	—	—	—	—
Rockefeller University	15	1,097,034	13	1,058,954	2	38,080	—	—
Roswell Park Memorial Institute	2	190,282	2	190,282	—	—	—	—
Sloan Kettering Institute for Cancer Research	4	367,898	4	367,898	—	—	—	—
St. Luke's–Roosevelt Hospital Center	2	136,492	—	—	—	—	2	136,492
St. Luke's–Roosevelt Institute for Health Science	1	159,811	1	159,811	—	—	—	—
State University of New York, Stony Brook	21	1,249,774	21	1,249,774	—	—	—	—
State University of New York, Albany	3	327,814	3	327,814	—	—	—	—
State University of New York, Buffalo	26	3,091,242	24	3,000,202	1	19,040	1	72,000
Syracuse University	3	220,342	3	220,342	—	—	—	—
Trudeau Institute	1	138,003	1	138,003	—	—	—	—
U.S. Department of Energy—Brookhaven	1	187,420	—	—	—	—	1	187,420
University of Rochester	35	3,485,408	27	2,775,044	6	442,514	2	267,850
Upstate Medical Center	6	380,066	5	361,686	1	18,380	—	—
W. Alton Jones Cell Science Center	1	62,751	1	62,751	—	—	—	—
Yeshiva University	40	5,567,295	34	5,182,332	4	345,463	2	39,500
Total, New York	**407**	**54,236,507**	**348**	**48,449,032**	**43**	**3,351,131**	**16**	**2,436,344**
North Carolina								
Duke University	74	9,331,084	60	8,218,376	13	901,525	1	211,183
North Carolina State University, Raleigh	1	134,867	1	134,867	—	—	—	—
Research Triangle Institute	4	1,217,084	1	64,393	—	—	3	1,152,691
University of North Carolina, Chapel Hill	42	5,098,007	31	4,260,735	8	557,965	3	279,307
Wake Forest University	24	4,347,160	17	2,816,214	3	277,256	4	1,253,690
Western Carolina University	1	60,102	1	60,102	—	—	—	—
Whitehead Medical Research Institute	1	45,514	1	45,514	—	—	—	—
Total, North Carolina	**147**	**20,233,818**	**112**	**15,600,201**	**24**	**1,736,746**	**11**	**2,896,871**

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
North Dakota								
University of North Dakota	2	31,781	2	31,781	—	—	—	—
Total, North Dakota	**2**	**31,781**	**2**	**31,781**	—	—	—	—
Ohio								
Battelle Memorial Institute	1	231,094	1	231,094	—	—	—	—
Case Western Reserve University	40	4,016,232	36	3,679,308	4	336,924	—	—
Children's Hospital Medical Center	5	1,453,159	4	1,402,416	1	50,743	—	—
Cleveland Board of Education	1	37,552	1	37,552	—	—	—	—
Cleveland Clinic Hospital	16	2,880,955	14	2,554,577	1	129,829	1	196,549
Medical College of Ohio, Toledo	9	658,715	7	563,601	2	95,114	—	—
Miami University, Oxford	1	79,849	1	79,849	—	—	—	—
Monsanto Dayton Laboratory	1	366,203	—	—	—	—	1	366,203
Mount Sinai Hospital of Cleveland	3	364,191	3	364,191	—	—	—	—
Northeastern Ohio Universities College of Medicine	1	26,305	1	26,305	—	—	—	—
Ohio State University	15	1,046,998	15	1,046,998	—	—	—	—
Ohio University, Athens	2	263,776	2	263,776	—	—	—	—
St. Luke's Hospital United Methodist Church	1	63,483	1	63,483	—	—	—	—
St. Vincent Charity Hospital	1	40,240	1	40,240	—	—	—	—
University of Cincinnati	35	4,494,302	30	2,992,636	4	306,666	1	1,195,000
Wright State University	4	552,144	3	274,859	—	—	1	277,285
Total, Ohio	**136**	**16,575,198**	**120**	**13,620,885**	**12**	**919,276**	**4**	**2,035,037**
Oklahoma								
Oklahoma Medical Research Foundation	6	783,184	6	783,184	—	—	—	—
Oral Roberts University	1	53,978	1	53,978	—	—	—	—
University of Oklahoma Health Sciences Center	20	1,827,789	13	1,279,974	6	292,948	1	254,867
Total, Oklahoma	**27**	**2,664,951**	**20**	**2,117,136**	**6**	**292,948**	**1**	**254,867**
Oregon								
Medical Research Foundation of Oregon	3	289,136	2	268,668	1	20,468	—	—
Oregon Health Sciences University	22	1,813,391	18	1,609,113	4	204,278	—	—
Oregon State University	5	333,059	5	333,059	—	—	—	—
Providence Medical Center	1	99,000	—	—	—	—	1	99,000
University of Oregon	2	161,651	2	161,651	—	—	—	—
Total, Oregon	**33**	**2,696,237**	**27**	**2,372,491**	**5**	**224,746**	**1**	**99,000**
Pennsylvania								
Albert Einstein Medical Center	1	1,083,951	1	1,083,951	—	—	—	—
Allegheny-Singer Research Corporation	1	59,055	1	59,055	—	—	—	—
Carnegie-Mellon University	1	312,051	1	312,051	—	—	—	—
Children's Hospital of Philadelphia	6	499,181	5	423,096	1	76,085	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Pennsylvania (Cont.)								
Franklin Institute	1	148,493	1	148,493	—	—	—	—
Graduate Hospital	5	289,289	5	289,289	—	—	—	—
Hahnemann Medical College and Hospital	7	870,747	6	442,750	—	—	1	427,997
Institute for Medical Education and Research	1	67,000	—	—	—	—	1	67,000
Lankenau Hospital	3	488,276	1	46,425	—	—	2	441,851
Medical College of Pennsylvania	10	1,170,230	8	1,017,494	2	152,736	—	—
Monell Chemical Senses Center	1	6,000	1	6,000	—	—	—	—
Montefiore Hospital	1	32,651	1	32,651	—	—	—	—
Pennsylvania State University–Hershey Medical Center	29	2,771,608	24	2,515,122	5	256,486	—	—
Pennsylvania State University, University Park	7	470,476	7	470,476	—	—	—	—
Presbyterian-University of Pennsylvania Medical Center	1	112,705	1	112,705	—	—	—	—
St. Christopher's Hospital for Children	1	62,351	1	62,351	—	—	—	—
Temple University	31	3,664,046	22	3,187,678	9	476,368	—	—
Thomas Jefferson University	16	1,538,529	12	1,268,835	3	144,519	1	125,175
University of Pennsylvania	76	12,034,852	61	11,010,458	15	1,024,394	—	—
University of Pittsburgh	25	2,912,433	16	1,724,265	2	123,302	7	1,064,866
Wistar Institute of Anatomy and Biology	2	80,691	2	80,691	—	—	—	—
Total, Pennsylvania	**226**	**28,674,615**	**177**	**24,293,836**	**37**	**2,253,890**	**12**	**2,126,889**
Rhode Island								
Gordon Research Conferences	5	71,632	5	71,632	—	—	—	—
Memorial Hospital	5	1,212,103	5	1,212,103	—	—	—	—
Miriam Hospital	4	504,984	4	504,984	—	—	—	—
Rhode Island Hospital	2	182,501	1	47,984	—	—	1	134,517
Roger Williams General Hospital	1	25,776	1	25,776	—	—	—	—
University of Rhode Island	1	106,376	1	106,376	—	—	—	—
Total, **Rhode Island**	**18**	**2,103,372**	**17**	**1,968,855**	**—**	**—**	**1**	**134,517**
South Carolina								
Clemson University	1	75,928	1	75,928	—	—	—	—
Medical University of South Carolina	13	870,985	11	684,845	1	128,636	1	57,504
South Carolina Department of Health and Environment	1	916,831	—	—	—	—	1	916,831
University of South Carolina, Columbia	6	917,824	5	280,092	—	—	1	637,732
Total, South Carolina	**21**	**2,781,568**	**17**	**1,040,865**	**1**	**128,636**	**3**	**1,612,067**
South Dakota								
University of South Dakota	2	82,595	2	82,595	—	—	—	—
Total, South Dakota	**2**	**82,595**	**2**	**82,595**	**—**	**—**	**—**	**—**

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Tennessee								
Meharry Medical College	2	169,334	2	169,334	—	—	—	—
Oak Ridge Associated Universities	1	92,055	1	92,055	—	—	—	—
St. Jude Children's Research Hospital	3	266,577	3	266,577	—	—	—	—
U.S. Department of Energy—Oak Ridge	1	145,305	1	145,305	—	—	—	—
University of Tennessee Center for Health Sciences	33	2,754,379	26	2,244,602	5	179,336	2	330,441
University of Tennessee, Knoxville	8	409,272	5	273,008	3	136,264	—	—
Vanderbilt University	30	4,956,597	26	4,643,195	4	313,402	—	—
Total, Tennessee	**78**	**8,793,519**	**64**	**7,834,076**	**12**	**629,002**	**2**	**330,441**
Texas								
American Heart Association	1	13,717	—	—	1	13,717	—	—
Baylor College of Medicine	44	9,124,685	35	7,407,686	5	269,825	4	1,447,174
Baylor University	1	43,310	1	43,310	—	—	—	—
Bishop College	1	10,476	1	10,476	—	—	—	—
North Texas State University	1	42,398	1	42,398	—	—	—	—
Rice University	9	808,146	9	808,146	—	—	—	—
Southwest Foundation for Research and Education	2	818,954	—	—	—	—	2	818,954
St. Luke's Episcopal Hospital	1	932,844	—	—	—	—	1	932,844
Texas Agricultural and Mechanical University, College Station	9	548,458	8	543,228	1	5,230	—	—
Texas College of Osteopathic Medicine	2	57,447	1	30,237	1	27,210	—	—
Texas Tech University	9	380,136	7	313,608	2	66,528	—	—
University of Houston, Houston	8	464,409	6	309,338	2	155,071	—	—
University of Texas, Austin	1	668	1	668	—	—	—	—
University of Texas Health Science Center, Dallas	53	7,079,233	45	6,063,707	7	534,225	1	481,301
University of Texas Health Science Center, Houston	9	2,549,633	6	351,917	—	—	3	2,197,716
University of Texas Health Science Center, San Antonio	34	4,663,427	30	4,310,702	4	352,725	—	—
University of Texas Medical Branch, Galveston	27	1,636,985	24	1,563,698	3	73,287	—	—
Total, Texas	**212**	**29,174,926**	**175**	**21,799,119**	**26**	**1,497,818**	**11**	**5,877,989**
Utah								
Latter-Day Saints Hospital	3	200,293	3	200,293	—	—	—	—
Salt Lake Clinic Research Foundation	1	127,500	—	—	—	—	1	127,500
University of Utah	36	4,520,148	35	4,456,085	1	64,063	—	—
Total, Utah	**40**	**4,847,941**	**38**	**4,656,378**	**1**	**64,063**	**1**	**127,500**
Vermont								
University of Vermont and State Agricultural College	21	3,495,465	17	3,417,181	4	78,284	—	—
Total, Vermont	**21**	**3,495,465**	**17**	**3,417,181**	**4**	**78,284**	—	—

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Virginia								
Eastern Virginia Medical School	3	152,373	3	152,373	—	—	—	—
JRB Associates	1	463,159	—	—	—	—	1	463,159
Kappa Systems	1	1,910,094	—	—	—	—	1	1,910,094
University of Virginia, Charlottesville	38	2,731,549	26	2,257,957	12	473,592	—	—
Virginia Commonwealth University	34	2,452,400	30	2,093,262	3	240,138	1	119,000
Total, Virginia	**77**	**7,709,575**	**59**	**4,503,592**	**15**	**713,730**	**3**	**2,492,253**
Washington								
Fred Hutchinson Cancer Research Center	2	55,458	1	37,078	1	18,380	—	—
Institute of Applied Physiology/Medicine	4	381,425	4	381,425	—	—	—	—
Providence Medical Center	2	193,420	2	193,420	—	—	—	—
Puget Sound Blood Center	2	830,909	1	809,673	1	21,236	—	—
University of Washington	86	13,406,007	66	9,599,395	19	1,226,972	1	2,579,640
Virginia Mason Research Center	8	438,902	7	417,666	1	21,236	—	—
Washington State University	3	261,109	3	261,109	—	—	—	—
Total, Washington	**107**	**15,567,230**	**84**	**11,699,766**	**22**	**1,287,824**	**1**	**2,579,640**
West Virginia								
West Virginia University	5	196,008	5	196,008	—	—	—	—
Total, West Virginia	**5**	**196,008**	**5**	**196,008**	—	—	—	—
Wisconsin								
Blood Center of Southeastern Wisconsin	2	170,871	2	170,871	—	—	—	—
Marshfield Medical Foundation	2	226,735	1	98,166	—	—	1	128,569
Medical College of Wisconsin	23	2,616,952	20	2,354,553	1	96,260	2	166,139
Mount Sinai Medical Center	3	423,405	3	423,405	—	—	—	—
University of Wisconsin, Madison	35	3,068,610	30	2,841,330	3	61,106	2	166,174
Total, Wisconsin	**65**	**6,506,573**	**56**	**5,888,325**	**4**	**157,366**	**5**	**460,882**
Puerto Rico								
University of Puerto Rico Medical Sciences Center	2	47,030	—	—	1	19,544	1	27,486
Total, Puerto Rico	**2**	**47,030**	—	—	**1**	**19,544**	**1**	**27,486**
Total, United States	**3,426**	**$409,473,894**	**2,740**	**$370,873,838**	**477**	**$31,347,956**	**209**	**$67,252,100**

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Argentina								
Institute of Biology and Experimental Medicine	1	37,640	1	37,640	—	—	—	—
Total, Argentina	**1**	**37,640**	**1**	**37,640**	—	—	—	—
Australia								
Parramatta Hospitals–Westmead Centre	1	105,336	1	105,336	—	—	—	—
Total, Australia	**1**	**105,336**	**1**	**105,336**	—	—	—	—
Belgium								
Catholic University of Louvain	1	18,956	—	—	1	18,956	—	—
Total, Belgium	**1**	**18,956**	—	—	**1**	**18,956**	—	—
Canada								
Dalhousie University	1	422,108	—	—	—	—	1	422,108
McGill University	2	101,795	2	101,795	—	—	—	—
Montreal Heart Institute	2	234,936	—	—	—	—	2	234,936
University of British Columbia	3	208,612	3	208,612	—	—	—	—
University of Manitoba	4	343,396	2	93,780	—	—	2	249,616
University of Toronto	2	1,007,072	1	30,032	—	—	1	977,040
University of Western Ontario	1	18,525	—	—	1	18,525	—	—
Total, Canada	**15**	**2,336,444**	**8**	**434,219**	**1**	**18,525**	**6**	**1,883,700**
Denmark								
University of Aarhus	1	65,794	1	65,621	—	173*	—	—
Total, Denmark	**1**	**65,794**	**1**	**65,621**	—	**173***	—	—
Germany								
Philipps University of Marburg	1	19,109	—	—	1	19,109	—	—
Total, Federal Republic of Germany	**1**	**19,109**	—	—	**1**	**19,109**	—	—
Israel								
Hadassah University Hospital	3	432,952	2	139,107	—	—	1	293,845
Tel Aviv University	0	5,309	—	—	—	5,309*	—	—
Total, Israel	**3**	**438,261**	**2**	**139,107**	—	**5,309***	**1**	**293,845**
Italy								
University of Cagliari	1	18,250	1	18,250	—	—	—	—
Total, Italy	**1**	**18,250**	**1**	**18,250**	—	—	—	—
Romania								
Institute of Cellular Biology and Pathology	1	24,700	1	24,700	—	—	—	—
Total, Romania	**1**	**24,700**	**1**	**24,700**	—	—	—	—

* Administrative supplement to previous year's award.

INSTITUTION	TOTALS		RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Sweden								
Caroline Institute	1	79,143	1	79,143	—	—	—	—
Total, Sweden	**1**	**79,143**	**1**	**79,143**	—	—	—	—
United Kingdom								
St. Thomas Hospital	1	21,414	—	—	1	21,414	—	—
University of London	1	28,109	—	—	1	28,109	—	—
Total, United Kingdom	**2**	**49,523**	—	—	**2**	**49,523**	—	—
Total, Foreign	**28**	**$ 3,193,156**	**16**	**$ 904,016**	**5**	**$ 111,595**	**7**	**$ 2,177,545**
Total*	**3,454**	**$472,667,050**	**2,756**	**$371,777,854**	**482**	**$31,459,551**	**216**	**$69,429,645**

Note: The above research grant figures do not include Scientific Evaluation Grants administered by the Division of Research Grants or Minority Biomedical Support Awards administered by the Division of Research Resources.

* The number of awards may not agree with other tables due to the method of counting supplements.

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